Channon's Review

H. Channon Company. JUNE, 1915 Chicago.

PENN. R.R. LIFT BRIDGE — SO. CHICAGO.

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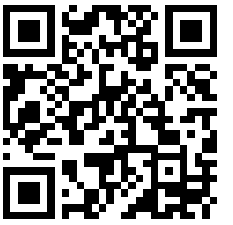

HARMONY

¶ Considered in its application to music, Harmony is the science which treats of the construction of chords according to rules of progression and modulation.

¶ Harmony results from the concord of musical strains which differ in pitch and quality.

¶ Melody denotes the pleasing alternation and variety of musical and measured sounds. It consists in a succession of single tones. Harmony consists in a succession of chords, or combinations of tones performed simultaneously.

¶ In the general sense Harmony is the fitting or joining together in concord and just proportion—the adaptation of parts to each other, in any system or combination of things intended to form a connected whole.

¶ Harmony means agreement in facts, opinions, interests, good citizenship, peace and friendship.

¶ On the other hand we have Discord. Musically considered it is a union of sounds which strike the ear harshly and disagreeably owing to the incommensurability of the vibrations which they produce, a want of musical concord.

¶ In its general application Discord defines the lack of agreement, the absence of Harmony in sentiment or action, a variance, leading to contention. disagreement, jarring and strife.

¶ In any organization established to accomplish a set purpose, serious and persistant discord can only end in disruption and ruin.

¶ Europe at present offers an example of discord pursued to its logical conclusion.

¶ In organized society as represented by law, in business or in industry we only progress and move a step forward as discords are removed, as the elements which differ in pitch and quality are composed, and when Harmony prevails.

¶ A great successful institution may be likened to a Symphony, —an elaborate composition, a consonance agreeable and delightful,—an arrangement of all the parts attuned to perfect Harmony.

¶ To those who are engaged in the pleasant pursuits of production or public service, and need machinery, equipment and supplies, if your want your buying economy to harmonize with your producing efficiency, use our Catalogs and Service and

"Concentrate Your Purchases"

H. Channon Company Chicago

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INTERESTING ARTICLES
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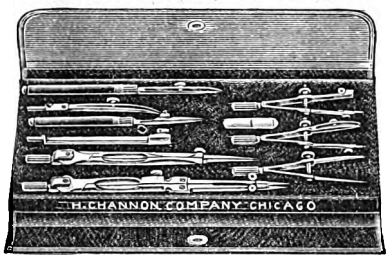
DRAFTING MATERIALS

Drawing Boards

No. 2254. Made of pine wood, ⅞ inch thick, with hardwood cleats dovetailed to allow for contraction and expansion.

Size, Inches	20x26	23x31	31x42
Price, Each	$1.60	$2.25	$4.00
Shipping weight, lbs.	12	19	33

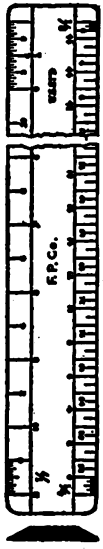
German Silver Drawing Set



The instruments in the set illustrated above are made of fine German Silver, highly polished, with steel points. The compass and dividers are provided with straightening device and pivot joint. Set contains one 5½ and one 4½ inch ruling pen with ebony handle, one each 3½ inch spring bow pen, pencil and divider, 5 inch hairspring divider, 5½ inch compass with fixed needle point, pen and pencil points, lengthening bar, straightening device, key and box of leads. Packed in a pocket folding case of grained morocco leather, velvet lined. Size of case closed 9¼x4 inches. Weight, about 1 pound. This set usually retails for $7.50 at art stores.

Price, complete, as described above.....$4.65

Flat Boxwood Scales



U. S. STANDARD MACHINE DIVIDED

Divided, ⅛, ¼, ½ and 1 inch to the foot.

Number 1200.
Length, 6 in.,
Price, each $0.35

Number 1201.
Length, 12 inches.
Price, each $0.50

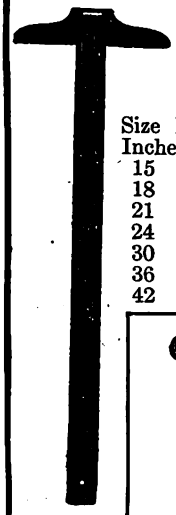
Number 1202.
Length, 12½ in.
Price, each $0.60

Number 1203.
Length, 18 in.
Price, each $1.15

Number 1204.
Length, 24 in.
Price, each $1.50

Shipping weights 6 to 8 oz.

Wood T Squares

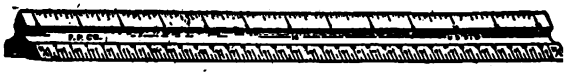


No. 1820 CHERRY BLADE FIXED HEAD

Size Inches	Net Price, Each
15	$0.15
18	.20
21	.20
24	.22
30	.24
36	.32
42	.36

Triangular Boxwood Scales

U. S. Standard Machine Divided



Divided ½, ¼, ⅛, ¼, ⅜, ½, ¾, 1, 1½, 3 inches to the foot.

Number	1300	1301	1302	1303
Length, inches	6	12	18	24
Price, each	$0.45	$0.50	$2.00	$2.75

Shipping weights, 6 to 8 oz.

Ruling Pens

No.	Length Inches	Price Cents
1000	4½	50
1001	5	55
1003	5½	60
1004	4½	65
1005	5	70

1000–1–2 have ebony handles, upper blade with spring.

1003–4–5 have aluminum handles, with fine joint and pin.

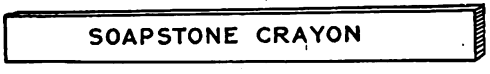
Aluminum Handles for 100–1–2, 10c extra.

Stamped Steel Thumb Tacks

No. 2370.	Flat heads, ⅛ in. diameter.	Per box of 100	$0.25
No. 2371.	Flat heads, ⅜ in. diameter.	Per box of 100	.30
No. 2372.	Flat heads, ½ in. diameter.	Per box of 100	.35
No. 2373.	Flat heads, ⅝ in. diameter.	Per box of 100	.50

GOOD VALUES IN CRAYONS AND CHALK

Metal Workers' Crayons



Made of Genuine Soapstone, selected for its high and uniform quality. Markings made on steel will remain even if steel is heated. Suitable for marking on iron, steel and other metals, weather stained lumber, etc. Cheaper, stronger and more convenient than other substances for marking on rough surface. Made in three shapes.

Flat	Square	Round
⅜x½x5 in.	¼x¼x5 in.	¼x5 in.
Flat or Round. Net per gross	$1.85	Doz. $0.20
Square. Net per gross	1.75	Doz. .20

Approximate weight 8 lbs. per gross.

Carpenters' Chalk

Half round. Colors, white, red or blue. Packed ½ gross in a box. Price per gross $0.75 Per dozen $0.10

Boughton Lumber Crayon

Boughton Lumber Crayons are unequalled for marking wet or dry lumber, steel, stone, etc. Made entirely from a special mineral compound containing absolutely no wax. Ground and moulded into hexagon form and covered with paper. The compound is colored with high grade dyes and is guaranteed absolutely waterproof. They are 5¾ inches long and ½ inch thick, and packed ½ gross in a box. Made in the following colors: Black, hard, soft and regular; blue, white, yellow and red.

Net Prices	Gross	Doz.
Black: hard, soft or regular	$5.00	$0.50
Blue, red, white or yellow	6.50	.70

Approximate weight, per gross, 14 lbs.

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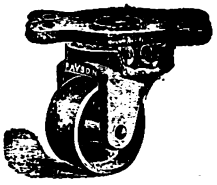
ANTI-FRICTION CASTERS

Oblong Plate

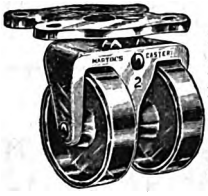


Strong and durable. Plate rests on a series of steel rollers, all weight being carried outside of center of main wheel. This relieves all friction on the pivot and all strain upon the fastening screws.

NET PRICE SET OF FOUR

No.	Size of Wheels Inches	Size of Plate Inches	Height Inches	Capacity Pounds	Iron Wheels
186-37	2⅛x ⅞	2⅛x3⅛	2¾	600	$0.35
188	2½x1¼	3 x4¼	3½	1,000	.70
190	3⅛x1½	3⅜x4⅞	4½	1,500	1.00
192	4 x2¼	4¼x6¼	6	2,000	3.00

Anti-Friction Double Wheel Truck Casters



Two wheels in a single frame loosely pivoted to the plate. Anti-fraction wheel runs directly over the axis, the weight thus resting entirely on the axis of the floor wheel and not on the pivot.

The feature of their construction is maximum strength with minimum friction.

PRICES PER SET OF FOUR

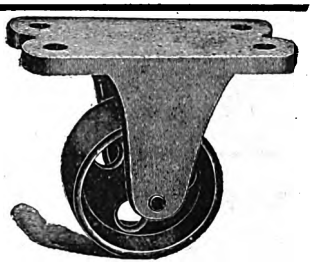
No. Oblong Plate	Size of Plate, Inches	Size of Wheel, Inches	Height, Inches	Capacity Pounds	Price Per Set of Four
72	2½x3½	2¼x ¾	3¼	1,500	$0.60
82	3¼x4⅛	2½x ¾	3½	2,000	.80
102	3¼x4¼	3⅛x4¾	4½	2,500	1.00
112	3½x5	3⅝x ⅞	4⅝	3,000	1.50
122	4¼x6¼	4⅜x1⅛	5⅞	4,000	2.75
142	5⅛x7⅛	4½x1¼	6	5,000	4.25

Speed Nut Auto Wrench

The quickest nut wrench made. Gives a lightning grip on any nut from ¼ to ¾ inch. It is unnecessary to turn any thumb screw or make any adjustments. The harder the pull the tighter it grips. Will not wear the corners of the nuts. Only three parts and will not get out of order. Made of drop forged steel. Price, each.....$0.90

H. Channon Company.

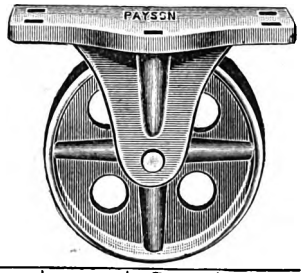
Stationary Truck Casters



This series of casters is intended to match the Payson Anti-friction caster listed on opposite column.

No.	Size of Wheel, Inches	Size of Plate, Inches	Height, Inches	Corresponds to Truck Caster	Price Per Set of Four
8	2½x1¼	4¼x2	3½	188	$0.60
10	3⅛x1⅜	5 x2⅜	4½	190	.75
11	5 x1⅜	6½x2½	6	192	1.85
12	5 x1½	7½x2¾	6	192	2.50

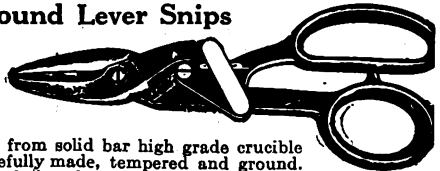
Stationary Truck Casters



This series is exceptionally well made and is intended for use with the Double Wheel Swivel Casters, listed in the opposite column.

No.	Size of Wheel, Inches	Size of Plate, Inches	Height, Inches	Corresponds to Truck Caster	Price Per Set of Four
242	2⅛x1	3 x4¾	3¼	72	$0.65
243	3⅛x1	3 x4¾	3½	82	.75
244	3⅝x1	3⅛x4¾	4⅛	102	.85
245	4⅛x1⅛	3⅜x5⅛	4⅝	112	1.40
246	5¼x1½	3⅞x7	5⅞	122	2.10
247	5⅜x1¾	4⅜x7	6	142	2.60

Compound Lever Snips



Forged from solid bar high grade crucible steel, carefully made, tempered and ground. They are designed to withstand the strain of heavy work without injury to themselves. The compound leverage is so arranged as to distribute the cutting power the full length of the blade. With the larger sizes a seam of four thicknesses of 24 gauge metal may be cut at the throat, middle, or at the point of the blades with practically the same pressure of the hand. Thicker metal can be cut with a Compound Lever Snip at the points of the blades than at the throat of an ordinary pair of snips.

No.	Price Each	Length Blade	Total Length	Weight
7	$0.80	1½ in.	7 in.	5 oz.
8	1.20	2 in.	8 in.	10 oz.
10	1.80	3 in.	10½ in.	1½ lbs.
12	2.40	3½ in.	12 in.	2 lbs.
14	2.80	4¼ in.	14 in.	2½ lbs.

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PURE TURKISH EMERY

Made from the best quality Turkish and Naxos Ore, thoroughly washed and concentrated, and always evenly graded.

PRICE PER POUND

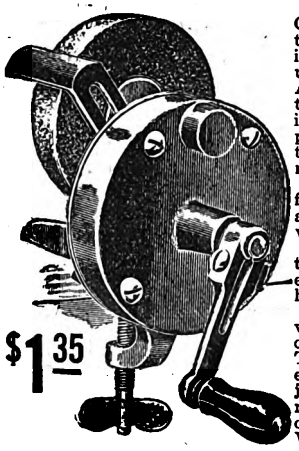
	4 to 46	54 to 180	Flour, F, FF, FFF
Numbers			
Keg lots (about 100 lbs.)	$4.50	$4.75	$4.50
10-pound cans, per can	.60	.65	.60
Less quantities, price per pound	.07	.07½	.07

Respirator

$1.25 Each

A FIRST CLASS GRINDER

For the small shop or for household use



$1.35

This CHALLENGE GRINDER is one of the best machines of its kind for all-around use.

All bearings are in the same piece, makint it practically impossible for the gears to get out of alignment.

All gears are cut from solid blanks, and assembled by expert workmen.

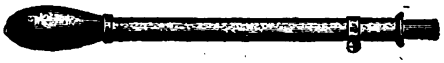
The wheel makes twelve revolutions to each turn of the handle.

All bearings are wide, insuring ample oil retaining surfaces. This grinder is equipped with an adjustable tool rest and medium grit carborundum wheel 4" x 1". Weight, six pounds.

Goggles

$1.15 Each

The Diamo-Carbo Dresser



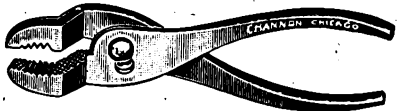
The best tool for dressing wheels used for precision grinding, such as those on Brown and Sharp, Cincinnati, Landis, and all Universal tool grinding machines.

Consists of a steel tool filled with an abrasive of such intense hardness that it cuts and dresses any grinding wheel except the extremely coarse and large wheels used in the foundry.

Net Prices

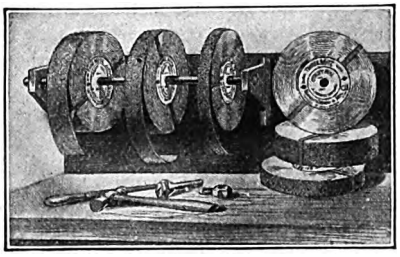
Number	3	5	8	9	11	12
Diam., in.	⅝	⅝	⅜	⅜	¼	¼
Length, in.	10	12	10	12	10	12
Price, each	$2.65	$3.00	$2.65	$3.00	$2.65	$3.00

Gittatit Offset Combination Slip Joint Pliers



Mechanics in all lines of work will find this new plier a very convenient tool. It will do practically all the work of the ordinary plier and will go into many out of the way places where others will not. It can be used as a cotter pin extractor and a wire cutter as well. The offset head permits plenty of room for the hand when working on flat work, or around corners, and still allow a flat right angle, forceful grip. Made in one size only, 7 inches long.

Price, each.....$0.40



HANDY ABRASIVE ROLLS

This abrasive cloth is intended primarily for metal finishing work. Made from artificial abrasives in an electric furnace. Under many conditions it has been found superior to emery, particularly on hard and tough metals.

For many classes of work these rolls are most economical, it being only necessary to tear off a piece of the necessary length.

NET PRICES, ROLLS

Handy Rolls, 50 Yards Long

Width of Roll Inches	3-0 to ½	1	1½	2	2½	3
½	$0.50	$0.52	$0.55	$0.58	$0.60	$0.63
¾	.63	.69	.74	.77	.80	.83
1	.80	.85	.90	.94	.96	1.05
1½	1.02	1.13	1.18	1.21	1.27	1.38
2	1.46	1.62	1.70	1.76	1.84	2.00
2½	1.84	2.06	2.17	2.26	2.34	2.59

Also furnished in sheets 9x11 inches.

NET PRICES, SHEETS

Nos.	3-0 to ½	1	1½	2	2½	3	3½
Grit	180-90	80	70	60	50	36	24
Ream	$12.59	$13.54	$14.13	$14.61	$15.68	$16.74	$17.81
Quire	.84	.90	.94	.98	1.05	1.12	1.19

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Channon's Review

VOL. 11 JUNE, 1915 NO. 6

Deep Diving Experiments and the Records at Honolulu

From the Engineering Record

IN RAISING Submarine F-4, which sank in the harbor of Honolulu, Hawaii, on March 29, 1915, the U. S. Navy Department is for the first time making use of an extensive series of experiments carried on under laboratory and practical conditions during the past two years. In fact, without the benefit of these experiments, it is unquestionable that the submarine would have had to be raised, if at all, by the old-fashioned expedient of dragging.

To Chief Gunner George D. Stillson, U. S. N., belongs a considerable amount of the credit due for the inception of this work. Mr. Stillson was fully conversant with a series of experiments conducted by the British Government in 1906-7, in which he took part himself, as a result of which divers had been able to go down to a depth of 200 feet with safety. In our own navy, the greatest depth attained was 100 feet and even that was attended with much risk. The English tests had shown that under the previous methods of diving, divers had been subject to bends upon returning to the surface and that the results had in many cases been fatal. It was shown that this trouble was due to improper decompression; in other words, the diver had been returned to the surface either too rapidly or too steadily. His blood, which had taken up nitrogen from the air, did not have proper opportunity to get rid of it. The English experiments, which were exhaustive, indicated that the best method was to bring the diver up by stages, allowing a period of 15 to 30 minutes at each stop for him to become used to the altered pressure.

After being called to the attention of the Navy Department by Gunner Stillson, the matter was taken up by the Bureau of Construction and Repair in connection with their submarine work, of which Naval Constructor Herbert S. Howard is in charge, and permission was obtained from the Secretary to make extensive tests.

It was early decided that the best results could be obtained first by experiments in a tank where the practical conditions surrounding the diver could be reproduced and he could be kept constantly under observation. The necessity for building such a tank was obviated by the offer of A. Schrader's Sons, Inc. who allowed the Navy Department to use their new tank in Brooklyn, N. Y. In this tank conditions equivalent to depths up to 215 feet were reproduced by closing the tank and applying pressure up to 100 pounds, which was the limit of safety.

The experiments were begun about February, 1914, and continued until the end of the summer. They were under the charge of Gunner Stillson and five chief-gunner's mates. The first part of the time was given up to checking the English decompression tables and to accustoming the party to diving. Later, thorough and exhaustive tests were made of suits, helmets and other diving gear and of various self-contained diving apparatus equipped with chemical and oxygen cylinders, apparatus for submarine escape and any other apparatus of which test was requested.

As a direct result of the experiments, a number of improvements in apparatus and method were developed, among which two are notable. The more important was the development of the first satisfactory method of feeding air to the divers from compressed-air cylinders instead of by hand pumps. The latter had proved inadequate because with them the men could not stand the work they had to do when under water and because the air could not be forced down to any considerable depth. This method was developed by Stillson by the use of properly devised valves, air washers and the like to regulate the supply of air. The other important improvement, also developed by Stillson, was the first feasible diver's telephone, adapted from combinations of different telephones. The effect of

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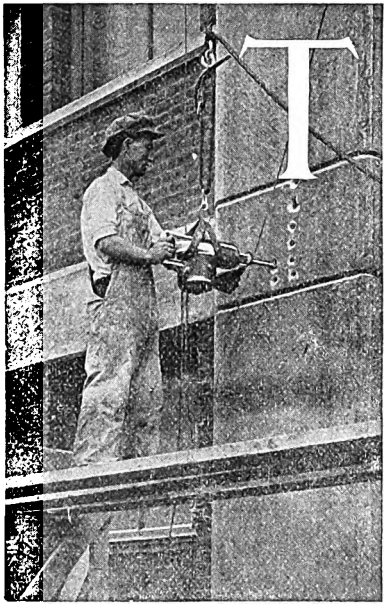
Drilling Concrete and Stone by Electricity

J. S. Knowlson



THE "Do It Electrically" spirit of the present day has brought with it a whole new set of conditions surrounding contracting work. Twenty years ago the contractor's basic equipment consisted of a boiler and engine of some kind to make his power, but in this electric age there is hardly a location where electricity is not available and instead of making his power the contractor buys it and applies it through motors at the most advantageous points.

One of the special applications of electricity comes in the use of electric hammers, replacing the man with the sledge or hammer and star drill and in some measure the air compressor with its piping and hose.

While electric hammers are not as yet built for riveting purposes, they are successfully used on a very large variety of work. The contractor today with a foundation to break up, openings to cut in walls, surfaces to redress, machinery, pipes, conduit or iron work to fasten to the structure, needs only to procure an electric hammer and a supply of electricity to do this work.

His equipment investment is small, limited to the tool itself, for electric hammers are complete in themselves and require no additional special equipment.

On the job he connects the tool to the nearest lighting outlet or wire and that is all there is to it. The tool is ready to serve. When the job is done he disconnects from the line and carries the tool back to the shop. The low first cost of the equipment combined with the ease with which these tools may be put in and taken out of service makes their use advantageous and practicable, not only where pneumatic tools have heretofore been used but on a large class of work, the magnitude of which was not sufficient to justify the installation of an air outfit.

The power cost of operating these machines is practically negligible, ranging from 2c to 5c an hour, depending upon the size of hammer used.

A man with an electric hammer may be expected to do about as much work as six men working by hand and this apparently exaggerated statement is easily explained when we remember that a man with a hammer strikes from 50 to 80 blows a minute and these electric tools strike from 1400 to 4000.

Electric hammers are by no means an experiment for they have been on the market somewhat over six years and are being used today with extremely gratifying results on a large variety of work. Nearly 100 tools are now used by manufacturers of opera chairs. who erect their product on concrete floors. They expect to drill 1000 holes a day with each tool.

Companies installing switchboards, pneumatic tube systems, piping, railings, sprinkler systems, fire escapes, fire doors, are using these hammers all over the country.

One General Contractor tells of the large saving through the use of these tools in taking out the old mortar between bricks for repointing, another of using them in breaking up old engine bed foundations and sidewalks.

Paint mills have installed them for dressing their mill stones, ice plants and Central Stations for chipping scale off condenser tubes. In short wherever a rapid succession of blows makes for saving these tools are

Continued on page 13

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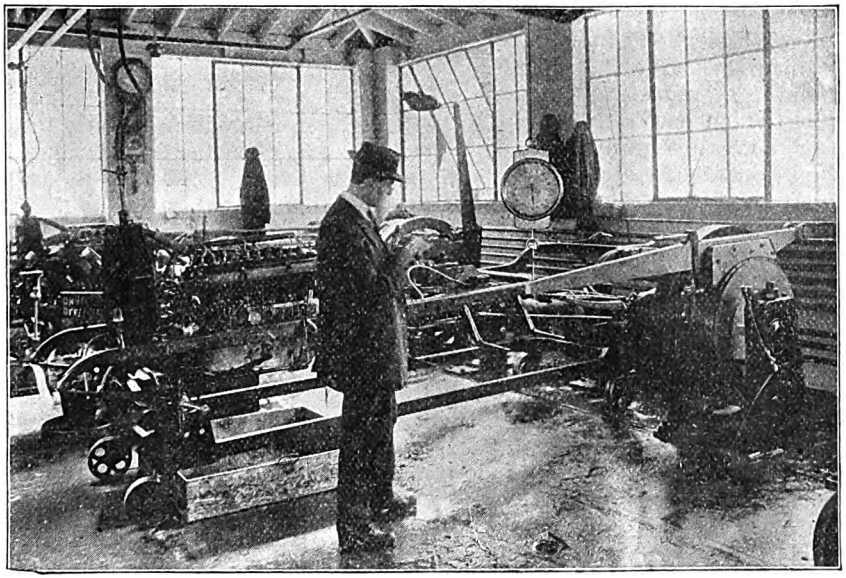
Dynamometer Testing of Chassis

L. V. Spencer

ROAD testing to determine whether or not a chassis is up to standard and is properly adjusted throughout, is not looked upon with favor by the Studebaker Corp. any more. Instead, a means of mechanical testing has been inaugurated which is calculated to give a uniformity to the chassis not attainable where the human element enters so strongly as it does in road testing.

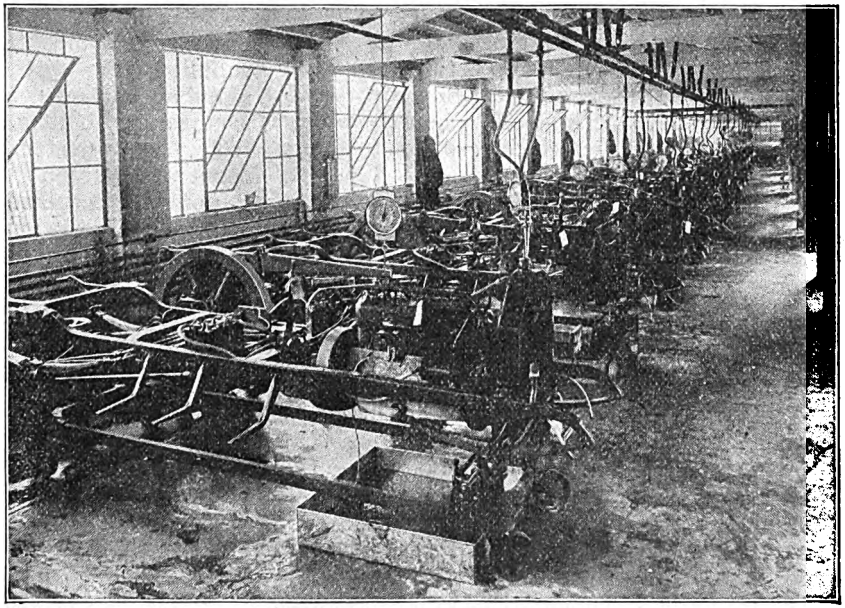
Methods of mechanically determining the performance of the car are naturally apt to turn out machines which are truer to type than are those by which a man seeks to determine its ability and efficiency over the worst kind of roads he can find. Mechanical methods must also take into account the human element, of course, but this to a lesser degree. Besides greater uniformity of product, it is a quicker process to give the car its first trial under load in a testing room than on the road.



Each chassis is direct connected to a drum which carries a flywheel. On the drum if fitted a prony brake, complete with spring balance, etc.

The Studebaker Corp. has installed nineteen dynamometer testing stands for trying out the new chassis as they come from the assembly departments. Along the 300 feet of length of the long, narrow test building there are water mains for supplying radiators from a main tank, gasoline mains for providing motors with fuel and dynamometers to absorb the power which the engines develop.

It is an impressive sight to stand at the far end of this long room and gaze at the line of laboring motors, each pulling a load which



Long line of chasses being tested under load for the first time. Nineteen can be accommodated at a time. Pipes carry water under constant circulation, to the radiators and mains also supply gasoline. This is a comparatively new scheme in automobile building

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STUDEBAKER DYNAMOMETER TESTING OF CHASSIS

Continued from page 7

to the familiar sounds which come from each mechanical steed; inspectors go about their business of testing the work of the testers; chassis graduating from their ordeal are moved out only to be replaced by others ready for their turn at vindicating themselves.

Each chassis is run 2½ hours under load in this department before it can further advance towards completion. Coming to the testing room on a form of iron truck which has been its steady companion ever since assembly began, the chassis is pushed to a test stand and made ready for work. At the back of the stand there is a substantial clamping arrangement which attaches to the rear axle housing and holds the chassis securely in place. A special axle shaft with an outer end arranged to couple to the dynamometer shaft is slipped into the axle, taking the place of the regular axle shaft, its inner end being splined to slip into the differential just as the regular shaft does.

Before coming here, the motor and rear axle have been tested separately in their respective assembly departments, so that when the motor is cranked by its own electric starting apparatus, it takes up its life work without hesitation.

In giving the chassis its 2½ hour test, the procedure insures that each speed reduction in the gearbox is satisfactory as well as all other features. The first step is to throw in the reverse gearing, the machine being run for 15 minutes this way. The load put on the prony brake is 85 pounds, which corresponds to about 42 horsepower.

With first speed gears thrown in, the car is operated for 30 minutes, pulling about the same load of 42 horsepower. It is next put into second speed and run for an hour. The first 30 minutes of this second speed run, the load is light, perhaps around 20 horsepower, while the last half hour is a heavy pull at about 42 horsepower.

The run in high gear is the last. This has a duration of 45 minutes, the load being that corresponding to a setting of 55 pounds on the brake. This amounts to from 27 to 30 horsepower load.

All along, the testers watch the performance and make any adjustments which are necessary. They look for oil and water leaks, adjust the ignition timing and check up the performance of the carburetor. In a word, they do everything that the road tester would do and in a shorter space of time. One man looks after four chassis on test.

Following the truing up and testing by the testers, an inspector goes over each chassis, puts on different loads and tests the car in each speed. If neither the testers nor the final inspector are able to bring any appreciable trouble to light which cannot be quickly remedied, the chassis is passed and is trundled on its truck to the wash rack at the end of the test room. After getting a bath, it proceeds to the paint shop.

Fifty cars a day are handled by this test department, a day being considered as 9 hours.

The water supplied to the radiators is kept in constant circulation to aid in cooling. A large supply tank is in the water system, and the water flows through the long series of radiators and then back to the tank. Pans are placed under the motors to catch drip of oil or water, and the whole scheme is worked out to a nicety. The precaution is even taken to use the lowest grade of gasoline so that the testing will not in any way favor the engine and it will be assured that it will operate under all conditions satisfactorily.

SAME MOVIE FILM IS SHOWN TWO AUDIENCES AT ONCE

In order to provide facilities for the accommodation of negro patrons, the manager of a photo-play house in a Maryland town recently had a room built at the rear of the building occupied by his theater. This was supplied with seats and separated from the main auditorium only by the movie screen, a curtain without a backing. Since the light from the projector shows through this, pictures may be seen from the back, thus making it possible to utilize both sides of the screen at once. All caption lines and printed matter, of course, appear in a reversed position, but this does not interfere with filling the back-room seats, which are sold at half-price.—Labor Digest.

The Iron Cross

The iron cross, the most highly prized recognition of valor in the German army and navy, is not a casting, but is struck with steel dies in heavy coining presses. After being stamped out, the crosses are taken to the silversmith's, where the soldering is done, a fine silver border added, and the finishing completed. The silver border is polished on electrically driven polishing and grinding motors.—American Machinist.

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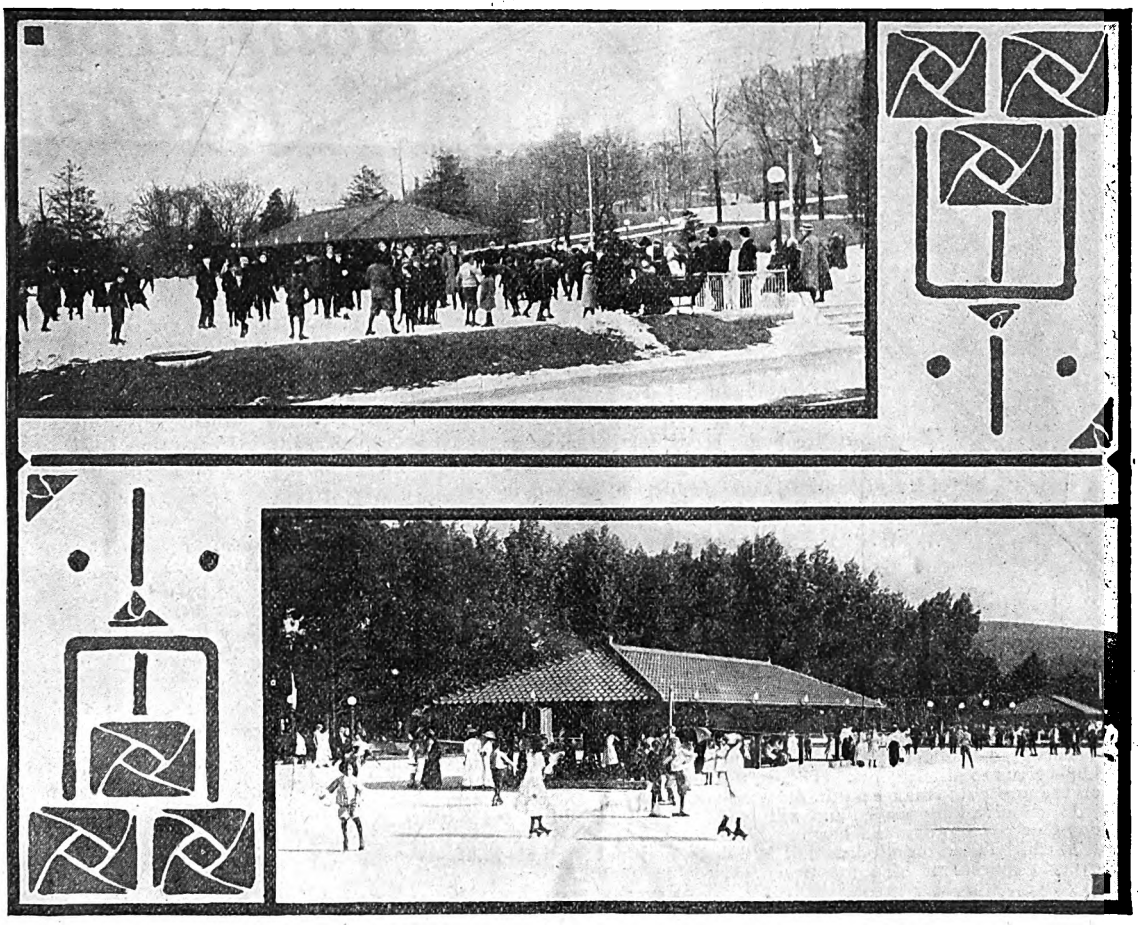

Playground on Reservoir

The City of Reading, Pennsylvania, has utilized some of the space that is wasted in most of the cities of the country. The great reservoirs in which the supply of water is stored are usually left uncovered. In Reading, however, this space has been used. The reservoir has been covered with a cement floor and turned into a playground for the grown-ups as well as the children of the city.

The cement floor is smooth and makes a splendid roller-skating rink in the summer, and when the frost comes it is flooded and allowed to freeze for ice skating. There are two summer houses erected on this reservoir, giving shade from the sun.

This might solve the problem in a number of places where a playground is needed.

DEEP DIVING EXPERIMENTS

Continued from page 5

such an instrument is far-reaching in increasing the confidence of the diver. Conversation is now possible at any time, where formerly he had to depend on signals by a line.

After the conclusion of these tests, they were supplemented by actual tests in deep water. In November, 1914, the torpedo boat destroyer "Walke" was equipped with a complete outfit of diving apparatus, including a recompression tank, and took the same party to Long Island Sound in the neighborhood of New London. This recompression tank was the first used in the United States for diving

Continued on page 13

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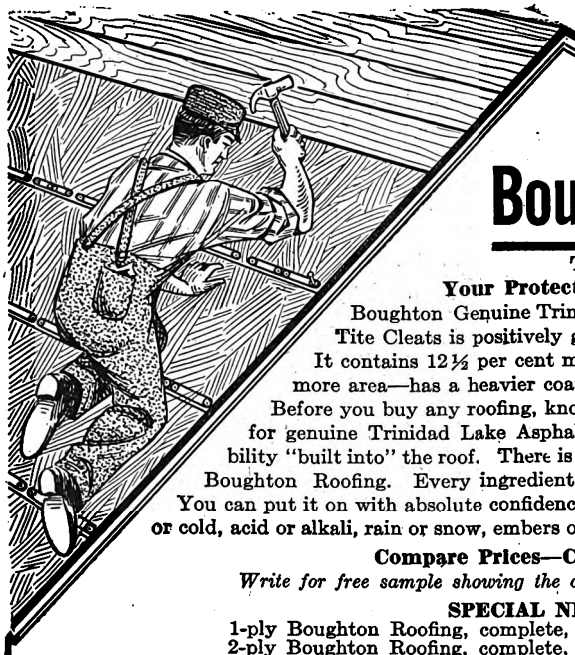

Boughton Roofing

Boughton

The Name is

Your Protection—Our Responsibility

Boughton Genuine Trinidad Lake Asphalt Roofing with Hold-Tite Cleats is positively guaranteed by us.

It contains 12½ per cent more highest grade asphalt. It covers 4 per cent more area—has a heavier coating and requires less maintenance.

Before you buy any roofing, know what kind of asphalt it contains. Take no substitute for genuine Trinidad Lake Asphalt. Look for this name on the label. It means durability "built into" the roof. There is not an ounce of tar, rosin, or asphalt substitutes in Boughton Roofing. Every ingredient in Boughton is "experience tested" and time tried.

You can put it on with absolute confidence that it will last a life time, and is unaffected by heat or cold, acid or alkali, rain or snow, embers or flying sparks.

Compare Prices—Consider the Value

Write for free sample showing the actual roofing, and Hold-Tite Cleats

SPECIAL NET PRICES

1-ply Boughton Roofing, complete, **$1.45** per roll (108 sq. ft.), wt. 35 lbs.
2-ply Boughton Roofing, complete, **1.70** per roll (108 sq. ft.), wt. 45 lbs.
3-ply Boughton Roofing, complete, **1.95** per roll (108 sq. ft.), wt. 55 lbs.

HOLD-TITE CLEATS AND GALVANIZED NAILS FURNISHED FREE

For those who want a good grade roofing at a low price, we recommend our

HELMER ASPHALT ROOFING

which is only second in quality when compared with Boughton brand.

This grade is made of a strong fibrous felt, uniformly saturated with asphalt on both sides, making it absolutely impervious to all elements. The coating on the underside protects against rising steam, vapors, gases, etc., and on the upper side makes a durable wear and weather resisting surface.

It will give long service and will not shrink or crack in winter weather, neither will it run during the hottest days, or become dry and hard.

It can be used on all classes of buildings, and makes an air-tight, water-tight, weather-proof roof, and meets every requirement of a practical, serviceable roofing.

SPECIAL NET PRICES

1-ply Helmer Roofing, complete, **$1.15** per roll (108 sq. ft.), wt. 35 lbs.
2-ply Helmer Roofing, complete, **1.40** per roll (108 sq. ft.), wt. 45 lbs.
3-ply Helmer Roofing, complete, **1.65** per roll (108 sq. ft.), wt. 55 lbs.

ASPHALT LAP CEMENT AND GALVANIZED NAILS FURNISHED FREE

Corrugated Ash Cans

This is the strongest ash can made. The material is extra heavy 24 gauge steel. All side, top and bottom seams are electrically welded. Reinforcing hoops and side handle clips are also electrically welded making the can practically one piece throughout. The vertical corrugations give triple strength to the sides and insure easy and perfect dumping. The cans are galvanized after formation, thus making leakage impossible. The tight fitting covers prevent the escape of disagreeable odors. Can is raised from ground by means of the bottom hoops of bar steel and insure much longer service. Built in three sizes which are sufficient for any purpose. Covers fit tightly owing to the slightly tapered wide flanges.

No.	Size, Inches	Capacity	Price
515	15x26	18 gallons	$2.70
518	18x26	27 gallons	3.00
520	20x26	34 gallons	3.60

For All Makes of Stationary Gas or Gasoline Engines—Use

Boughton Gas Engine Oil

This is a specially compounded oil for stationary gas and gasoline engines. Cylinders are very often ruined by the use of cheap oils, and we are confident that a trial of our Boughton Brand will convince you of its superior qualities. It is a strictly high grade oil and warranted pure and clean.

Carried in stock in 1-gal. and 5-gal. cans, also half and full steel or wood barrels.

APRIL NET PRICES

Single Gallon Cans, Price, each	$0.40
Five Gallon Cans, Price, each	1.50
Half Barrels, wooden, Price, per gal	.25
Half Barrels, steel, Price, per gal	.30
Full Barrels, wood, Price, per gal	.23
Full Barrels, steel, Price, per gal	.28

For every purpose that a lubricating oil may serve there is made a Boughton grade to do the work well.

LET US SHIP YOUR OIL IN STEEL BARRELS

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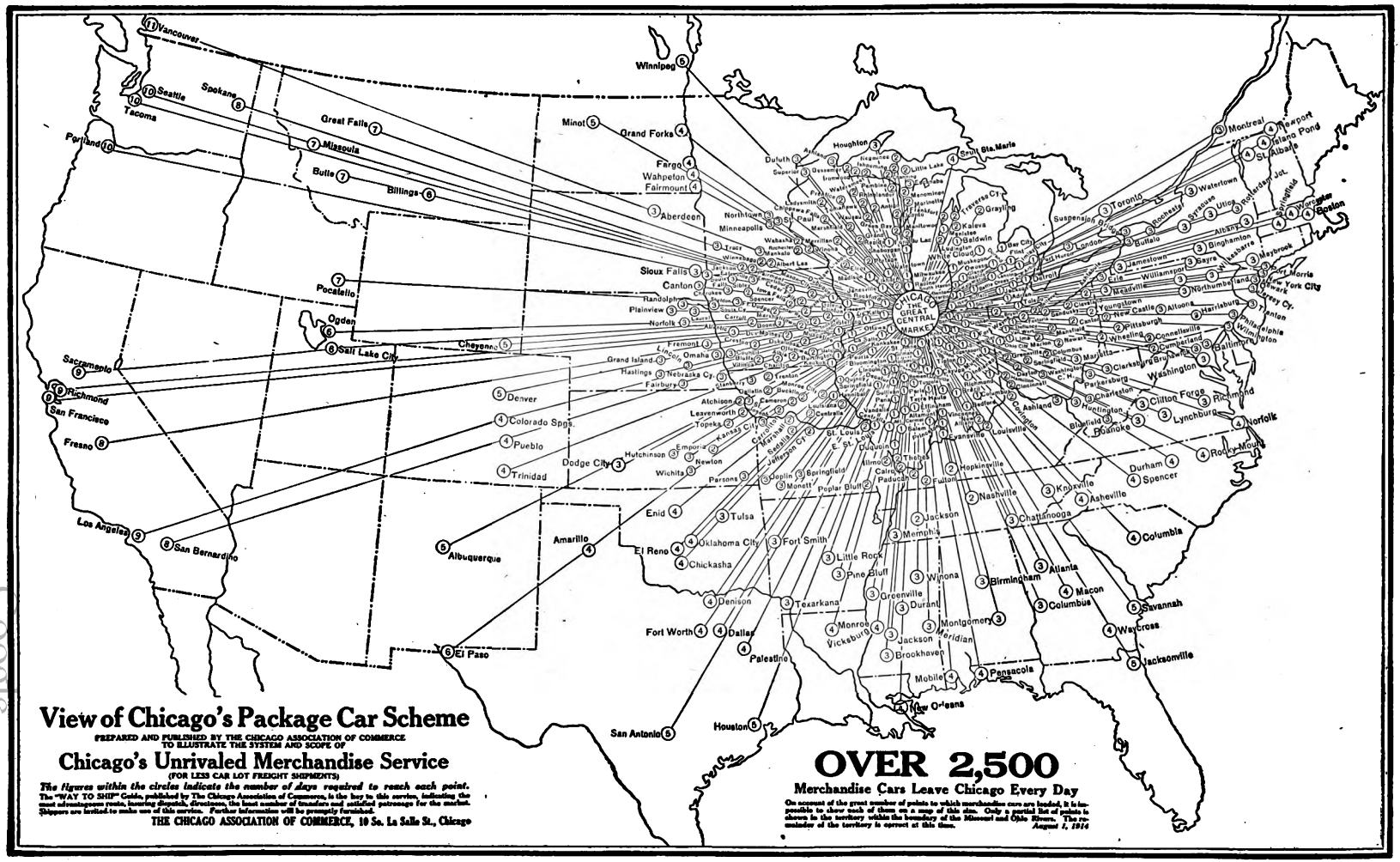
Map of Chicago's Package Car Scheme

Showing the number of days it takes less than car lot shipments to reach various points throughout the country


CHICAGO THE GREAT CENTRAL MARKET
Vancouver
Winnipeg
Seattle
Tacoma
Spokane
Portland
Great Falls
Missoula
Butte
Billings
Minot
Grand Forks
Fargo
Wahpeton
Fairmount
Aberdeen
Pocatello
Ogden
Salt Lake City
Cheyenne
Sacramento
Richmond
San Francisco
Fresno
Los Angeles
San Bernardino
Albuquerque
El Paso
Amarillo
Denver
Colorado Spgs.
Pueblo
Trinidad
Dodge City
Hutchinson
Wichita
Enid
Tulsa
El Reno
Oklahoma City
Chickasha
Fort Worth
Dallas
Denison
Palestine
San Antonio
Houston
Texarkana
Fort Smith
Little Rock
Pine Bluff
Greenville
Monroe
Vicksburg
Jackson
Brookhaven
Mobile
New Orleans
Pensacola
Meridian
Montgomery
Birmingham
Atlanta
Macon
Columbus
Savannah
Waycross
Jacksonville
Memphis
Jackson
Winona
Durant
Nashville
Knoxville
Chattanooga
Asheville
Spencer
Durham
Columbia
Rocky Mount
Norfolk
Richmond
Lynchburg
Clifton Forge
Roanoke
Bluefield
Huntington
Ashland
Charleston
Parkersburg
Clarksburg
Washington
Baltimore
Wilmington
Philadelphia
Trenton
Jersey City
Newark
New York City
Morristown
Boston
Worcester
Providence
Newport
Salem
Pond
St. Albans
Montreal
Toronto
Watertown
Rochester
Syracuse
Utica
Albany
Binghamton
Hornellsville
Jamestown
Erie
Williamsport
Northumberland
Meadville
Youngstown
New Castle
Altoona
Harrisburg
Pittsburgh
Connellsville
Wheeling
Cumberland
Mansfield
Columbus
Zanesville
Cleveland
Akron
Canton
Fremont
Lincoln
Omaha
Grand Island
Hastings
Nebraska City
Fairbury
Atchison
Leavenworth
Topeka
Kansas City
Emporia
Newton
Parsons
Joplin
Springfield
Monett
St. Louis
E. St. Louis
Alton
Centralia
Carlinville
Jefferson City
Mexico
Moberly
Hannibal
Quincy
Burlington
Ottumwa
Des Moines
Creston
Council Bluffs
Sioux City
Sioux Falls
Canton
Randolph
Plainview
Norfolk
Wayne
Wisner
Albion
Spencer
Sheldon
Primghar
Cherokee
Storm Lake
Webster City
Fort Dodge
Mason City
Clear Lake
Waterloo
Cedar Falls
Marshalltown
Grinnell
Iowa City
Davenport
Rock Island
Moline
Peoria
Bloomington
Decatur
Springfield
Jacksonville
Quincy
Alton
Belleville
Centralia
Carbondale
Cairo
Paducan
Fulton
Hopkinsville
Evansville
Louisville
Indianapolis
Terre Haute
Lafayette
Logansport
Peru
Kokomo
Muncie
Richmond
Connersville
Lawrenceburg
Cincinnati
Hamilton
Middletown
Dayton
Springfield
Columbus
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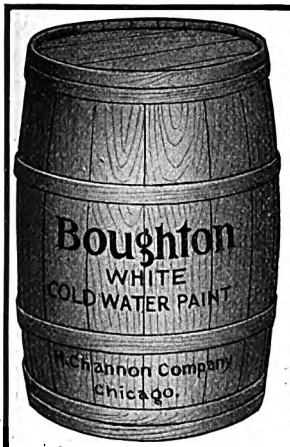
Wheeling
Cumberland
Mansfield



BOUGHTON COLD WATER PAINT

The perfect paint for machine coating large surfaces.
Easier to prepare than whitewash—Costs but little more.

HAS NO EQUAL

It has no equal for coating the interior walls and ceilings of mills, factories, warehouses, breweries, cold storage and power plants, car barns and similar structures.

Works equally well with brush or coating machine; is adapted to either smooth or rough surfaces of wood, brick, stone, cement, metal or plaster, forming a hard, beautiful finish which will not fade, turn yellow, check or peel.

Boughton White Cold Water Paint makes dark, grimy and unsanitary places look bright, clean and cheerful; Is WHITER and STAYS WHITER than oil paints and costs but a trifle in comparison.

We Sell Spraying Machines

It does not foam, scum or settle. Remains in perfect solution; does not clog the machine; sprays freely and much more surface can be covered and more satisfactorily than with any other paint.

NET PRICES. Boughton White Cold Water Paint

Barrels (400 lbs).....per lb., **3c**	25 lb. kegs.....per lb., **6c**
100 lb. kegs.....per lb., **4c**	5 lb. trial packages.....per lb., **8c**
50 lb. kegs.....per lb., **5c**	Made in white and fourteen different colors.

Write for descriptive color card.
Painting by machinery reduces the cost to a minimum.

Write for catalog on Spraying Machines

AD-EL-ITE PAINT AND VARNISH REMOVER

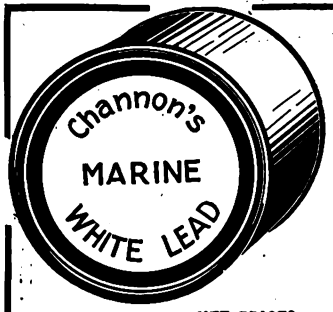
In liquid and paste form. Will take off any thickness of paint, varnish, shellac or enamel. Will clean to the bare wood almost instantly, and leave the wood in perfect condition for refinishing. Is free from acids, alkalies or water and positively will not raise or bleach the grain of the finest veneer. Also used for cleaning old paint brushes, painted glass surfaces and for softening old putty. Especially adapted for floors or all horizontal and vertical surfaces.

1-gallon can, each	$2.00
Half-gallon can, each	1.10
Quarter-gallon can, each	.60
Pint can, each	.30
Half-pint can, each	.20

ALUMINUM READY MIXED PAINTS

This paint produces a brilliant and smooth finish, is not affected by heat, cold or moisture and will not peel off. Used for painting or repainting steam pipes, radiators, registers, automobile engines, picture frames, wood and metal surfaces.

1 gallon cans, price per can	$3.50
Quart cans, price per can	1.00
Pint cans, price per can	.65
Half-pint cans, price per can	.35
Quarter-pint cans, price per can	.25
1-6-pint cans, price per can	.15



Channon's Marine White in Oil

is warranted for whiteness, covering capacity and durability. We have sold this brand for over a quarter of a century, and it has always given satisfaction. It is not a Carbonate of lead like other brands of white lead, but will positively wear better and not chalk, peel or crack. Takes more lead and covers more surface, pound for pound and is whiter.

NET PRICES

100 lb. kegs.....per lb.	$0.07½
50 lb. and 25 lb. kegs.....per lb.	.07¾
12½ lb. kegs.....per lb.	.08
5 lb. cans.....per can	.60
2 lb. cans.....per can	.25

SPECIAL PRICES TO REDUCE STOCK

Genuine Ru-ber-oid Roofing—the highest grade rubber type roofing on the market.

1-ply, per square	$1.20
2-ply, per square	1.65
3-ply, per square	1.95

"HY-POL" AUTO BODY POLISH

The best automobile polish for bodies, cushions, tops, etc. Just as easy to rub with Hy-Pol as it is to dust. Gives body fine lustre and makes cushions soft and pliable.

5-gallon cans, per gallon	$2.65
1-gallon can, each	2.75
½-gallon can, each	1.50
1-quart can	1.00
12-ounce can	.50
5-ounce can	.25

Write for Paint and Oil Bulletin 55-R

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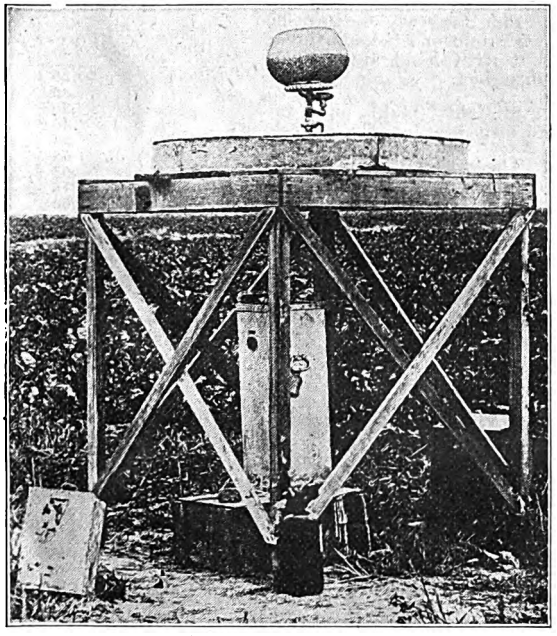
CHECKING PESTS BY LIGHTS IN FIELD

A method of destroying the pernicious cutworm moth has been devised by beet sugar growers in California, and is of such effectiveness that it will be used elsewhere when its value is generally known.

The device is of simple construction and may be set up readily where electric light can be secured, or else acetylene lamps may be used, as both have been used near Oxnard in the big beet fields. A frame is constructed standing a few feet above the ground and on it is placed a round pan four feet in diameter and a few inches deep. This is designed to contain oil in which the pests will fall and



perish. The light which attracts them to the trap is placed about a foot above the oil pan and is surrounded by a glass globe of eight-inch diameter. The moths of the cutworm, and other parasites, fly toward this light in great numbers when it is illuminated by night and, striking the globe, they drop into the pan of oil and are killed by thousands. In the Oxnard fields the catch for a single night has varied from 1500 to 7000 moths, and a large percentage of them were egg-carrying females. This would mean the destruction of millions of the pest in a season, and a campaign of the ranchers in a reasonably extensive section would greatly lessen the ravages of the insects. The photograph shows one of the light traps, with the acetylene outfit below the frame.

DEEP DIVING EXPERIMENTS

Continued from page 9

purposes and consists of a tank similar in principle to the large one in which the original experiments took place. If a diver upon reaching the surface is affected by bends, he can be immediately placed in the tank and recompressed, then returned by slow stages. It was during these practical tests that Chief Gunner's Mate Drellishak established the world's record of 274 feet and remained under long enough to do work. It is remarkable that throughout both tests, when diving was being carried on at depths greater than ever before, no accident occurred and there were only two or three mild cases of bends.

Immediately upon the receipt of the news that Submarine F-4 had sunk Chief Gunner Stillson and his five assistants, accompanied by Passed Assistant Surgeon Geo. R. W. French, U. S. N., were placed upon a train and rushed to the Coast, where the U. S. S. "Maryland" was awaiting them. The trip to Honolulu was made in less than 10 days from New York, breaking all records. The submarine was found covered by about 275 feet of water and the old inadequate method of sweeping was being employed, though one diver had gone down 215 feet, of course without result. The submarine has hoisting pads, and also a hoisting sling, which it is the object of the divers to find in order that cables may be attached. It may also be possible to find the air connection on the submarine and by use of compressed air blow out some of the water in the boat. The divers are unable to stay down for longer than 15 to 20 minutes on account of the danger of oxygen poisoning. Up to April 17, three lines had been attached and the greatest depth attained by any diver had been 288 feet, a world's record.

DRILLING CONCRETE AND STONE BY ELECTRICITY

Continued from page 6

used successfully. They unquestionably represent one of the interesting and successful developments of this electric concrete age.

CHANGES OF ADDRESS

Those who receive Channon's Review are requested to send in any change of address at the earliest opportunity. It will be more convenient in making the change in our mailing list if the new address is written on the envelope in which the magazine is received. Send to the Editor.

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MACHINISTS' HAND TAPS

Made from best grade steel, with a special process of tempering. All taps tested for accuracy and a specially built machine also tests the strength of the shanks, subjecting the taps to a far greater stress than can be given in the shop. Therefore all taps are uniform both in accuracy and strength and maximum results are obtained from their use.

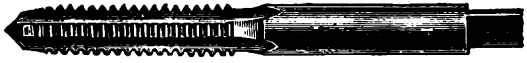
SET—Bottoming—Plug—Taper

NET PRICES

Standard Size Inches	Number Threads per Inch		Net Price	
	U.S.Std.	V Std.	Per Set	Each
1/8	32	24	$0.39	$0.13
1/4	20	20	.48	.16
3/8	16	16	.60	.20
1/2	13	12	.75	.25
5/8	11	11	.90	.30
3/4	10	10	1.20	.43
7/8	9	10	1.53	.51
1	8	9	2.10	.70

Larger sizes up to 4 inches carried in stock.
32nd inch oversizes furnished from stock in all sizes.
64th inch oversizes furnished from stock in all sizes up to 41-64.

STOVE BOLT TAPS



These taps correspond in sizes and threads to standard stove bolts.

NET PRICES

Diameter Inches	Number Threads per Inch	Per Dozen	Each
1/8	24	$0.95	$0.10
1/4	18	1.10	.11
5/16	18	1.10	.11
3/8	16	1.20	.12

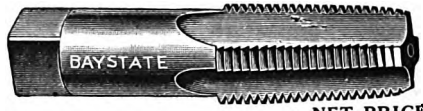
MACHINE SCREW TAPS

These taps will be furnished in sets if desired.
Less than six of a size and thread will be charged at prices for single taps.
Sizes and threads not listed will be subject to special prices.
Left hand threads are special and subject to special prices.

NET PRICES

Size of Screw Gauge	Standard No. of Threads	Net Price Dozen	Each
2	56	$0.95	$0.10
3	48	.95	.10
4	36	.95	.10
6	32	.95	.10
8	32	.95	.10
10	24	.95	.10
10	32	.95	.10
12	24	.95	.10
14	20	1.10	.11
16	18	1.10	.11
18	18	1.10	.11
20	18	1.20	.12
20	16	1.20	.12
24	16	1.20	.12

PIPE TAPS



Pipe taps will be furnished with right or left hand threads but right hand are regularly furnished.

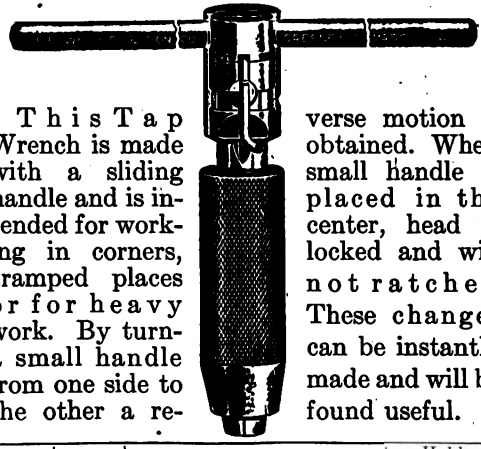
Straight (plug) pipe taps furnished at regular prices.

The steel in these taps is of exceptionally high quality and they are especially recommended for manufacturing purposes.

NET PRICES

Size Inches	Taps Price Each
1/2	$0.25
1/4	.30
3/8	.35
1/2	.40
3/4	.55
1	.65
1 1/4	.95
1 1/2	1.15
2	1.60
2 1/2	2.90
3	4.10

RATCHET "T" TAP WRENCH



This Tap Wrench is made with a sliding handle and is intended for working in corners, cramped places or for heavy work. By turning a small handle from one side to the other a reverse motion is obtained. When small handle is placed in the center, head is locked and will not ratchet. These changes can be instantly made and will be found useful.

No.	Price Each	Holds Machine Screw Taps	Holds Machinists' Hand Taps, ins.
1R	$0.75	No. 1 to No. 16 incl.....	1/16 to 9/32 incl.
2R	1.50	No. 14 to No. 24 incl.....	1/4 to 1/2 incl.

STANDARD TAP WRENCHES

No.	Price Each	Length Over All Ins.	Fitting Taps Ins.	Approx. Weight Pounds
1	$0.65	6 1/2	1/16 to 3/32	1/2
2	1.35	12	1/4 to 5/16	1 1/4
3	2.10	14	1/2 to 3/4	1 7/8
4	2.65	19	3/4 to 1 1/8	4
5	3.45	24	7/8 to 1 1/2	6

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Business and Financial Review and Outlook

Our Trade Regeneration is Progressing Satisfactorily but the Future Depends on the Country's Self-restraint when Sparks Fly Over from Europe.

By Arthur Prill

EDITOR'S NOTE—While so many of our readers enjoy and appreciate these able articles by Mr. Prill we think it proper to say they must not be understood as necessarily reflecting the opinions of H. Channon Co. as a firm.

Arthur Prill

American business is steadily gaining strength. In forecasting financial currents we are nevertheless compelled to take into account such sentiment as may be aroused by red-hot headlines and hypodermic editorials. Jim Smith who sells stocks on La Salle Street has no overpowering desire to shoot Johann Schmidt raking radish rows along the Rhine. That the honor of either can be impugned by Potsdam ambition or defended by Washington wisdom, that the physical, moral or financial well being of either is improved by their killing or maiming each other, is a mediaeval mental relic of the days when most of our ancestors wore brass collars. An Italian poet wants to be known to posterity as the singer of his country's naval victories and a million of his fellow patriots are throwing their hats into the air with joy because they will now have a premature opportunity to study putrefaction bacilli at that great university whose graduates never come back.

The duty of every American business man to his bank account is to contribute a little more than his fair share of calmness to the nation's psychological state. About three generations hence there will be newspapers which state only facts, uncolored by editorial impulses consciously or unconsciously directed by owners' or advertisers' inclinations. Until then, our trade problem in such a world crisis as the present depends for satisfactory solution on our ability to maintain the common sense position of a man who plays the garden hose on his own back fence while neighbors, gone mad, put fire to one another's barns. He does not call for his own match box and axe because a cinder singed the cat that would run into the alley.

Our only danger lies in entanglement with other people's troubles. It is taking us a year to adjust ourselves to the European situation but such rearrangement of American producing and shipping facilities is now sufficiently advanced to permit calculation of business prospects in most lines—for the period of the war, and, provided that we take no active hand in the firing of explosives whatever their base: nitroglycerine, embargoes or ultimata.

Our wheat crop will probably be large enough to feed the world; the present insect scare seems to be exaggerated. Grain elevators should fatten beyond all records except that of last year. Bankers in the Middle West are therefore extending credits with sufficient freedom so that salesmen whose goods are destined ultimately for the farmer will append their signatures to their sales reports with more of a flourish than they have used for several years. Wheat at $1.40 on the farm, as compared with 80 cents last season, means not only a new reaper but a dozen stiff collars, a college sweater and monogrammed invitation cards. Corn and oats, 10 to 15 cents higher, have also contributed to cash deposits.

The railways already see the light: potatoes can't be rolled far along the track unless wheels are put under them,—so we learn of inquiries for thirty thousand new cars. If the movement of general merchandise continues to increase, and it will, provided the Stars and Stripes are satisfied to wave between the Atlantic and Pacific, new equipment orders will take on boom-time proportions. The repair shops are on full time now. Quick delivery of steel products in all lines is likely to become difficult to obtain by Nov. 1 next; then "rush" will be specified with every application and there will develop among both country and city merchantsa buying fever whose temperature won't be lowered by the bare-shelf disease now rampant.

In the security market only those who enjoy war stock pyrotechnics care to pay the price of admission to the grand stand. Municipal bonds, farm mortgages, paving certificates and securities for whose desirability bankers in the smaller centers can vouch, enjoy some demand but until our international position is more clearly defined conservatism will limit public participation in investment opportunities that would otherwise spell new enterprise and expansion. This is as it should be and forms a solid foundation for prosperity in 1916. Of course, men who think that million-share days on the New York stock exchange indicate easy money are also right, only they do not recognize "whose" money is coming easy and in which direction. Anyone satisfied with about six per cent interest and perhaps twenty per cent increase in market value in three years, could safely accumulate many of the standard railroad stocks. This June will be a good one for brides in any financial partnership that mates conservatism with courage.

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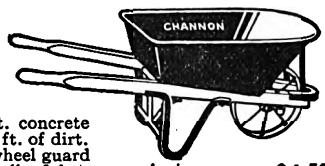
Channon Contractors'

PLOWS ... SCRAPERS ... DUMP CARTS ... CONCRETE CARTS ...

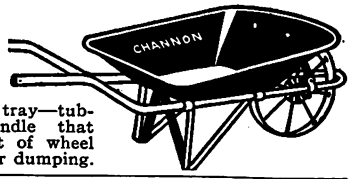
CONCRETE AND MORTAR



Carries 2 cu. ft. concrete or mortar or 4 cu. ft. of dirt. Legs, braces and wheel guard for dumping are all of heavy angle iron. Wheel is directly under load making barrow easy to handle. Passes easily through doorways. Weight 73 lbs.

$4.50 each
$46.00 dozen

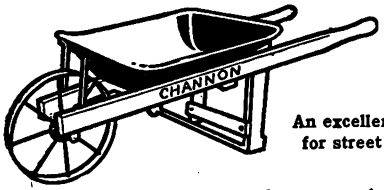
COLUMBUS TUBULAR—ALL STEEL



Seamless steel tray—tubular iron handle that passes in front of wheel to form rest for dumping.

No.	Cap'y cu. ft.	Tray, Inches	Wt.	Each	Doz.
4	3	32 x 29	75	$3.75	$32.00
5	4	35½ x 28½	82	4.50	45.00
10	6	41½ x 33	109	5.50	60.00

BULLOCK STEEL TRAY

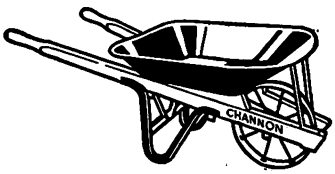


An excellent barrow for street paving

Single sheet steel tray with flange turned over steel rod that passes entirely around tray—stiffening it and preventing breakage. Steel wheels—iron braced wooden legs. Capacity—2 cu. ft. wet and 4 cu. ft. dry.

$3.50 each
$35.00 Dozen

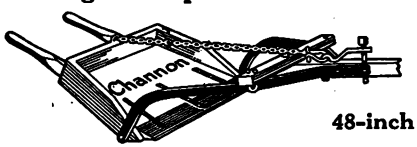
No. 2B BARROW



2B—A general purpose barrow with handles extended to form rest for dumping. Angle iron legs and braces—heavy steel tray turned over steel rod. Extra strong wheels.

$4.00 each; $42.00 dozen.

Tongue Scraper and Ditcher No. 1



48-inch Blade

For making and leveling roads, cutting and cleaning, irrigation and other large ditches. Well adapted to moving earth short distances.

Cut of scraper is regulated by length of chain as desired to suit material being worked.

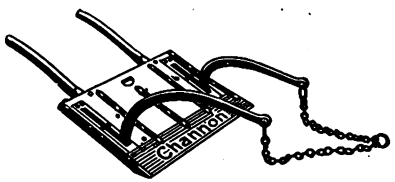
Box and handles of well seasoned lumber.

Quarter inch steel blade 4 inches wide, 48 inches long. Shoes and drawbars of steel. All points of wear well protected. No whiffletrees or yoke furnished with scraper. Net, each.....$7.00

Other sizes quoted on application.

FLAT BOARD SCRAPER No. 42

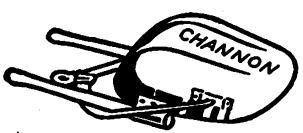
For making ditches and embankments



The peculiar shape and attachment of the curved drawbars make this easy to handle.

Ruggedly built of heavy lumber, bolted together with all wear points fully protected. 48 inches wide. Weight 75 lbs. Net, each.....$5.50

STEEL DRAG OR SLIP SCRAPERS



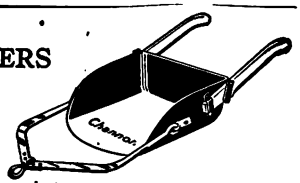
"Columbus"

Heavy Bail Steel Runners

The most popular slip scraper made. Full size, full weight bowl, pressed into correct shape from single sheet of steel. Bail is heavy and fastened securely to sides. Handles are properly set for easy loading. Steel runners on every scraper.

"Victor"

Square Back Double Bottom



Heavy full size solid steel bowl with square back. Strong steel swivel, secured to bail by four double rivets.

No. 1, either style, holds 7 cu. ft. Weight 110 lbs. Each.....$5.30

No. 2, either style, holds 5 cu. ft. Weight 100 lbs. Each.....$5.10

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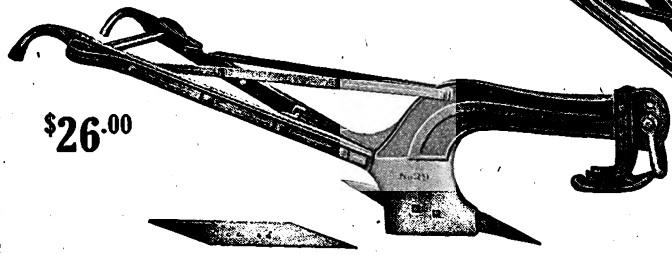
Dependable Equipment

WHEEL BARROWS ... PICKS ... SHOVELS ... LANTERNS ... TOOLS

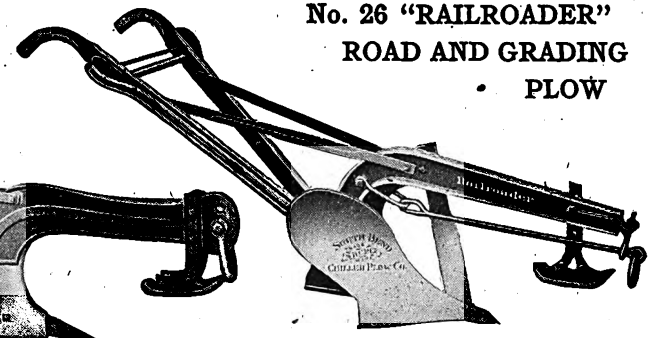
No. 29 "BULLDOG" ROOTER OR HARDPAN-PLOW



$26.00

A heavy, powerful plow for tearing up hard turnpikes, cobblestones, macadam, and the hardest of hard-pan. Built to stand the roughest and the heaviest kind of work.

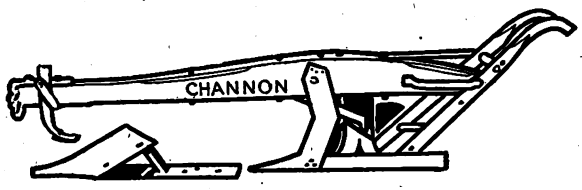
No. 26 "RAILROADER" ROAD AND GRADING PLOW



A heavy, cast-iron beam for road and general township work. Strong, and substantial for rough work. Good suction—holds the ground under bad conditions.

$21.00

HEAVY GRADING PLOWS



Handles and beam of heavy hardwood with malleable iron handholds. Standard and cap forged from steel. Mould board, reversible cutter and landslide point are first grade plow steel. Heavy steel rods run underneath beam and bolt to standards. Plows shipped set up complete.

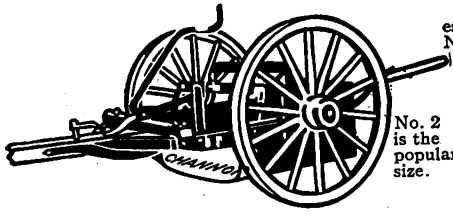
Net Prices

106.	2- 4 horse, cuts 10 in.	**$22.50**
105.	4- 6 horse, cuts 10 in.	**24.00**
101.	6- 8 horse, cuts 12 in.	**28.50**
103.	12-14 horse, cuts 12 in.	**39.50**

Improved "20th Century" Wheeled Scraper

Much more material can be carried a greater distance by the 20th Century Wheeled Scraper often at no more expense than with the ordinary drag-scraper, and always at less expense per cubic foot of material handled.

The No. 1 size can be loaded and dumped by one man and two horses pull it up an incline almost as easily as a drag-scraper, while with No. 2 (the most popular size) two men are sometimes used for filling—it can be filled and always dumped by one man. Two men are required to fill No. 3 but one experienced scraper man can dump it.



No. 2 is the popular size.

One team pulls and dumps any of the three sizes. A snatch team is necessary for loading the No. 3 size and where material is very heavy, on the No. 2.

Bowls made from single sheet of high carbon steel. Axle, levers and bars carefully forged to proper shape.

No.	Capacity	Diameter Wheels	Weight	Each
1	10 cubic yards	38 inches	500 lbs.	**$28.50**
2	12 cubic yards	40 inches	675 lbs.	**39.00**
2½	14 cubic yards	44 inches	750 lbs.	**42.50**
3	16 cubic yards	46 inches	815 lbs.	**47.50**

Sizes 2½ and 3 shipped from factory in Ohio.

$16.00 Net, Each

CHANNON CONCRETE CART No. 3

Easy to Run
Easy to Dump

Heavy plate bowl strongly reinforced. Oilless wood bushings capped to exclude dirt. Clears itself quickly and completely. Will stand rough usage.

WE carry in stock, ready for immediate shipment, a full line of contractors' supplies and equipment.

Picks	Hoes	Pails
Shovels	Forks	Lanterns
Handles	Brooms	Blacksmith's Tools
Spades	Rakes	Trench Braces

H. Channon Company.
Chicago.

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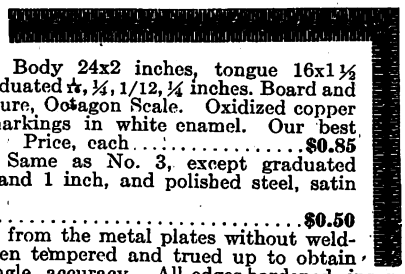
Steel Squares



No. 3B. Body 24x2 inches, tongue 16x1½ inches. Graduated 1/8, ¼, 1/12, ½ inches. Board and Brace Measure, Octagon Scale. Oxidized copper on steel markings in white enamel. Our best steel square. Price, each.....**$0.85**

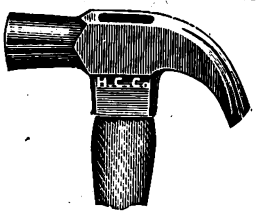
No. 14. Same as No. 3, except graduated ⅛, ¼, ½ and 1 inch, and polished steel, satin finish.
Price, each.....**$0.50**

Cut solid from the metal plates without welding, and then tempered and trued up to obtain absolute angle accuracy. All edges hardened, insuring accuracy and prolonging the life of the square Markings are deep cut and accurate..

Write us for information

and prices on round dies.

Channon Nail Hammers



An exceptionally good hammer at a moderate price.

No. 91 1-2

Weight one pound.

Price 25 Cents

The Electric Hammer

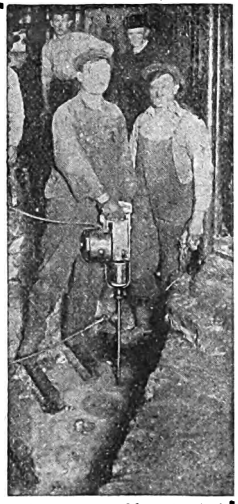
Saves 80% over Hand Drilling.

No compressor—
No piping—
No hose.

Simply attach to the nearest lamp socket.

Takes no more current than a toaster or electric flatiron. (4c an hour.)

Strikes 20 to 40 times as many blows per minute as a man with a hammer.



Drilling out an old engine bed. Holes three feet deep. From a lamp socket.

NET PRICES

(Can be furnished either D. C. or A. C., 110 or 220 Volts.)

Direct Current Only

Model No.	Power Consumption, Watts	Blows per M	Capacity in Concrete	Wt Lbs.	Net Price
3	150	4000	½ inch	14	$200
4	220	1800	1 inch	25	125
7	550	1300	1½ inch	50	165
	Universal (Operate on D. C. or A. C., 25, 30 or 60 cycles)				
2	150	4000	½ inch	15	$ 125
6	240	1800	1 inch	27	150

"Cincinnati" Portable Electric Drills and Grinders

Portable—
Air Cooled

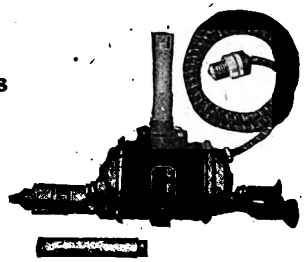


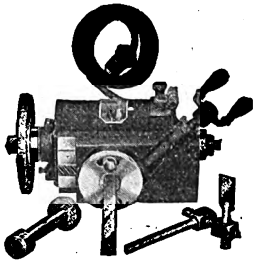
Fig. G-1210—Side Drive

Portable—Ball-bearing—attach to lamp socket. Showing side drive drill with detachable handle for close corner work. Fitted with chuck. Taper socket can be had with ½-inch drills if desired. Will bore in wood to greater capacity.

Can furnish to order—special slow speed drills for drilling in marble, slate, glass, etc. Alternating current drills weigh slightly more.

Capac. in steel inches	Speed R.P.M.	Wt. D.C. Lbs.	Direct		Alternating	
			Size	Net Price	Size	Price
¼	900	14	A	$40.00	AA	$45.00
⅜	750	16	B	50.00	BA	54.00
½	450	18	C	60.00	CA	64.00
*½	450/750	19	CC*	68.00	CX*	72.00

*Has two speeds, 450 and 750.



"Cincinnati" Tool Post Grinders

Fig. G-1420—
With Feed

For grinding lathe centers, cutters, reamers, dies, rolls, etc., and for surface, parallel and internal grinding jobs of all kinds.

Tool rests and extension mandrel furnished with first two sizes only.

Fully enclosed, dust and dirt proof.

Net Prices with Horizontal Feed

H.P.	Speed R.P.M.	Size of Wheel	Wt. Lbs	Direct		Alternating	
				Size	Net Price	Size	Net Price
¼	4200	6x⅜	16	S	$37.00	SA	$44.00
½	2500	8x½	35	SS	60.00	SSA	72.00

Net Prices without Feed

H.P.	Speed R.P.M.	Size of Wheel	Wt. Lbs	Direct		Alternating	
				Size	Net Price	Size	Net Price
¼	4200	6x⅜	16	P	$ 30.00	PA	$ 35.00
½	2800	8x½	35	PH	52.00	PHA	62.00
1	2000	10x1	75	PO	70.00	POA	85.00
2	1600	12x1½	110	PT	110.00	PTA	125.00

Larger Tools will be found in SPECIAL COMPLETE CATALOG, sent upon request.

H. Channon Company.

Market and Randolph Streets.

Chicago

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How Belts are Made and Tanned

W. F. Schaphorst

MOST BELT USERS do not understand the meaning of the term "Tanning." They speak of it in a way that would indicate a mere surface process; that belts are tanned on one side only. The tanning process, which is really a soaking process in water full of bark, naturally affects the belt clear through.

To go through the tanning or belt making process, briefly, the skin is first soaked in lime water after removal from the animal. This swells the pores and loosens the hair sufficiently to enable the outer thin skin and all of the hair to be removed. This is done by hand with blunt scrapers. The remaining hide is then washed and treated with lactic acid to remove any of the lime that might remain in or on the hide. The hide is then prepared for taking the tanning material by pickling in a solution of sodium chloride and sulphuric acid. This acid, of course, penetrates the belt and surrounds every fibre. Lastly the hide is placed in a bath of wet white-oak bark, the temperature of which is maintained at about 80° degrees F., after which it is left to soak in a similar bath for about six months. During this time the hide is always completely submerged and the tanning effect certainly reaches through and through. Every fibre is reached.

Nearly the whole of the hide is utilized in some way or other, but for belting the center stock is always preferable. This stock lies along the backbone including about 15 inches on each side and a length of about 4 to 4½ feet.

After the six months' tanning bath the hide is removed and washed in fresh water; after which a shaving machine is put to work to take off all loose flesh that might project from the surface of the hide. The hide is then scoured carefully to make the hide fit to absorb the grease that is later applied to give the belt pliability. Stretching frames are then brought into action in which the hides remain until they are perfectly dry. After this the "belt section" is trimmed out in sizes as mentioned above.

These sections must be lapped and scarfed, of course, in order to make belts of any desired length, which processess are usually performed by machines to insure accuracy. There must be no grease on the lapped surfaces, otherwise the cement used for jointing will not hold. The jointing is effected under high pressure usually in order to insure thorough contact over the entire lapped surfaces.

Inasmuch as 30 inches is the maximum obtainable width from the hide, it is evident that 30 inches is the maximum possible width for a single ply belt. To make a belt wider it must be made two or three ply and sometimes more. In fact, most 30-inch belts are usually made thicker than single ply. These plies are made firm by "breaking joints" laterally as well as longitudinally. That is, the joint of one ply would not be allowed to lie directly over the joint of the adjoining thickness.

The belt gets its flexibility from the greases and oils that are applied to the hide while in the stretching frames. Very often other substances such as sugar of lead, glucose, etc., are stuffed into the belt with the greases to make it heavy.

The best belting does not wrinkle when bent back at an acute angle but always retains a smooth surface.

When selecting a belt care should be taken to see that the belt is true. It should lie perfectly flat on a smooth level floor and the thickness should be uniform throughout. A true belt is not liable to run off the pulleys easily unless slip is excessive and a uniformly thick belt will run with best contact and least noise.

To get the most out of the belt it should always be kept pliable. In fact, by continued treatment with a good belt preparation pliability may be increased with age and in due time it will be found possible to run the belt quite slack while pulling full load. A slack belt is most desirable because in that state pulley contact arcs are the maximum and tensions on the bearings are a minimum. Both of these features tend toward maximum economy and are sought by all belt men of most modern ideas.

A good paint for canvas is made from one bar yellow soap; one gallon boiled linseed oil; one pound litharge; one-half pound sugar of lead; one-half gallon turpentine. Add any kind of dry color desired.

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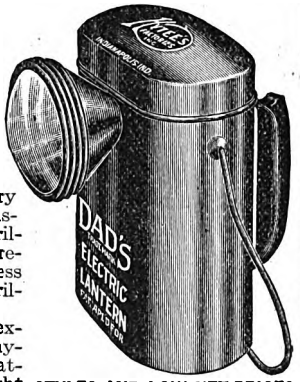
THROWS LIGHT THREE HUNDRED FEET

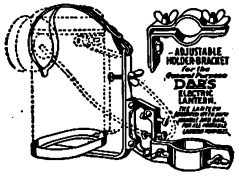
Nearly every home store, office and shop can find daily use for

DAD'S ELECTRIC LANTERN



Uses two-standard dry batteries. Has 3-in "bulls-eye" lens in front of brilliant, non-tarnishing reflector, Mazda tipless bulb. Produces a brilliant, useful light.

No danger of fire or explosion. Can be used anywhere. One set of batteries should give bright light for 150 hours steady burning.



STYLES AND LOW NET PRICES

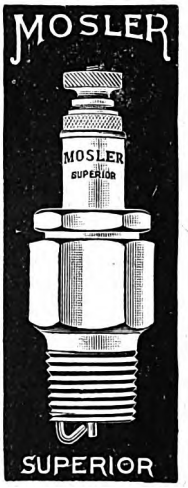
Regular, as above....**$2.50**
For Bicycle Lamp.... **3.00**

Above prices include batteries. If ordered without batteries, deduct fifty cents from above prices.

ADJUSTABLE HOLDER

For fastening Dad's lantern to bicycle, boat, tree, wagon, wall, etc.

Price, net.....**$1.00**



Mosler Spark Plugs

MOSLER SUPERIOR

This is a high grade plug at a low price. The best plug on the market for Ford, Overland, Studebaker, and other well known cars using ½ inch standard plug. Made in ½ inch, Metric, and ⅛x18 standard sizes.

Price, each.....**$0.35**

MOSLER VESUVIUS

The Vesuvius is the best stone insulated plug on the market. Made in three sizes. Gives the utmost power to the engine. The original long life plug. Try a set. ½ inch, Metric, ⅛x18.

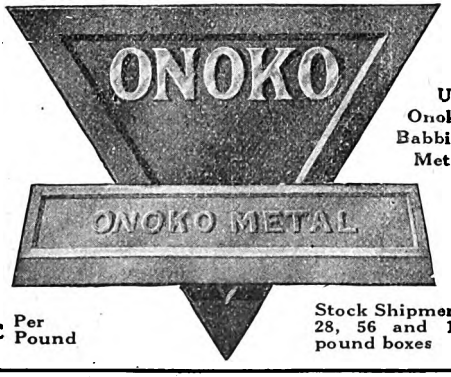
Price, each.....**$0.95**

Mosler plugs are used in the majority of high grade cars leaving the factories this year.

The Closed End Spit-Fire type has been giving universal satisfaction for over fourteen years. Made in three standard sizes.

Price, each.....**$0.75**

PAY LESS FOR THE SAME RESULT



Use Onoko Babbitt Metal

16c Per Pound

Stock Shipments 28, 56 and 112 pound boxes

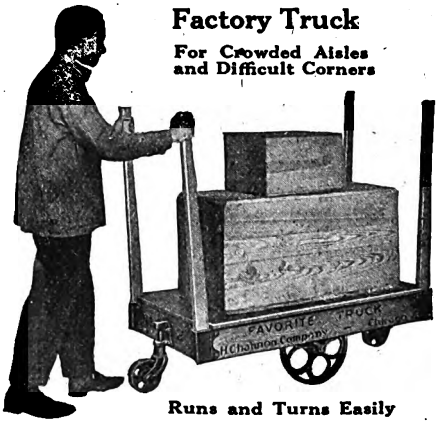
DROP-FORGED STEEL BABBITT MELTING LADLES

Diameter of Bowl, inches	Lead Capacity, pounds	Net Price, Each
3	1½	$0.18
4	4	.25
5	8½	.33
6	15	.90
7	26	1.08
8	45	1.35
9	57	1.80
10	80	2.15
12	130	3.50

The Channon Favorite

Factory Truck

For Crowded Aisles and Difficult Corners



Runs and Turns Easily

An all around service Truck unusually adapted to work in crowded aisles and cramped quarters.

Two large center wheels with swivel casters at truck ends. Sturdy hardwood body securely bolted together. The corner pockets holding the posts are set out over the frame leaving the entire platform available for load and forming solid protection to corners of the body.

No. 2—28x48 in. Platform 14 in. wheels one swivel caster at each end each.....**$6.50**

No. 3—36x60 in. Platform 16 in. wheels two swivel casters at each end each..... **9.00**

We sell many other styles of trucks—for all purposes.

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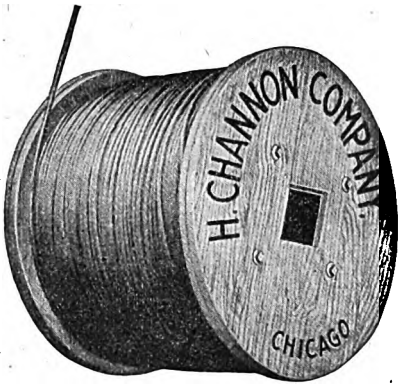
Bullock Dredge Cable



Made from drawn wires having a tensile strength of 220,000 to 280,000 lbs. per sq. in. of sectional area.

The Strongest, Toughest and Most Efficient Wire Rope Obtainable, the Best and Cheapest That Can Be Used Where Great Strength and Hard Service Are Required.

"BULLOCK" wire rope is especially adapted for heavy derricks used in structural steel and bridge erection, for railroad wrecking cars, ballast unloaders, dredges, steam shovels, stump pullers, for well drilling, for rapid coal hoisting or wherever a rope is subjected to severest pulling strains or wear.

The wire is drawn from the very finest English plough steel wire rods. These rods have a base of the purest Swedish charcoal iron and are in every respect the finest possible material that can be procured at the present day. The rods are tempered by special process and drawn with exceptional care by the most skilled workmen.

Bullock Dredge Chain

Hand made, from the finest and toughest dredge iron. The iron from which this chain is made in **tough, exceptionally strong, fibrous** and made hard to prevent wearing rapidly.

The welding is entrusted to the most experienced workmen only and none but those thoroughly competent and reliable are permitted to weld this highest grade chain. Bullock chain is carefully inspected before and after testing. We have sold Bullock chain for over thirty years to particular people who want the very best.

ASK FOR CATALOG 66

Channon Manila Rope

Continuously—"For over thirty years" we have been selling rope.

Ajax Manila Rope

For Transmission of Power and other hard service.

Ajax is the strongest and finest of all ropes made of Manila Hemp—nothing better can be obtained anywhere at any price.

Ajax is made from a specially selected, high quality long fibre Manila hemp which has had all the knots, tow and other weak parts carefully "combed" out of it before it is spun into yarns. Ajax rope is higher in price than common rope but is well worth the difference in price and will prove the most economical in the end.

Channon No. 1 Manila Rope

For ordinary service.

Our Channon No. 1 grade is a strictly pure, unadulterated first quality product carefully made from clean, good Manila hemp fibre with just enough lubricating oil to lay it up properly. There are no cheaper fibres mixed with it, nor any other adulterants to add weight—as a result, this rope is light, strong and uniform throughout. With the exception of our Ajax brand, there is no better rope made.

Ask for Rope Catalog No. 66, Covering Manila and Wire Ropes.

H. Channon Company. Chicago.

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"Thirty Dollar Derrick"

All Steel—Full Circle Swing—Capacity 1,000 lbs.

1. Full Circle Swing.
2. Raising and Lowering Boom.
3. Quick Action—Direct Pull.
4. Lever Band Brake.
5. Ratchet and Pawl on Both Drums.

A New Departure

6. Eccentric Lock Holding Mast.
7. All Steel.
8. Strong.
9. Light Weight.
10. Price Within Reach of All.

SPECIFICATIONS

Boom	6 ft. long.
Mast	4 ft. high.
Weight	225 pounds.
Steel Cable	110 ft. long.
Capacity	about 1000 pounds
Price, without block	$30.00
Price, with block (as shown above)	33.00

A portable derrick that is portable in two units—that is—the top part including the boom, drums and wire rope can be lifted off the bottom half, as one unit and carried to a new location.

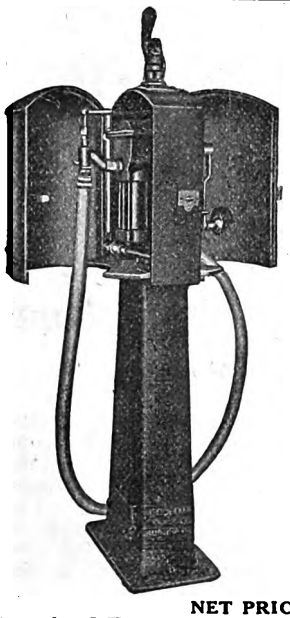
Furthermore—this is the only derrick of its kind in which the boom can be raised and lowered—it has two drums.

Just what every builder of three and four-story buildings has been looking for—a light but strong and dependable steel derrick with a full circle swing—one man can set it in place in 15 minutes.

Also used for loading and unloading material from cars.

Send for circular giving other illustrations and additional description.

H. Channon Company. Chicago.



CURB PUMP

for Auto Filling Stations

A very high grade and reliable gasoline pump at an unusually attractive price. Rapid. Easily operated. No reverse motion. Registers half gallons and gallons.

NET PRICE

Standard Pump..... $65.00
Electric Light, extra..... 10.00

Gasoline Storage Tanks—all sizes—furnished at attractive prices.

FIRST AID CABINETS

No. 2 Cabinet

Every shop, office, factory, shipping room, home, should have a first aid cabinet. Prompt first aid treatment in the case of an accident is the surest means of preventing serious later consequences. First Aid Cabinets save many doctors' bills and in cases of severe accident are invaluable until the arrival of the surgeon. They are accident insurance policies at low prices. In mills and factories workmen are constantly subject to accident. Prompt application of first aid will often nip trouble in the bud, and save costly accident claims. Our first aid cabinets are complete and conveniently arranged, and an illustrated book of instructions is furnished with each cabinet.

Made in two sizes: No. 1—Size of Cabinet 12x8x3¼ in. for homes, offices, etc.; No. 2—Size of Cabinet 15x10x5 in. Cabinets made of hard wood, oak finished and are nicely varnished.

NET PRICES

No. 1. Each..... $2.50
No. 2. Each..... 6.00

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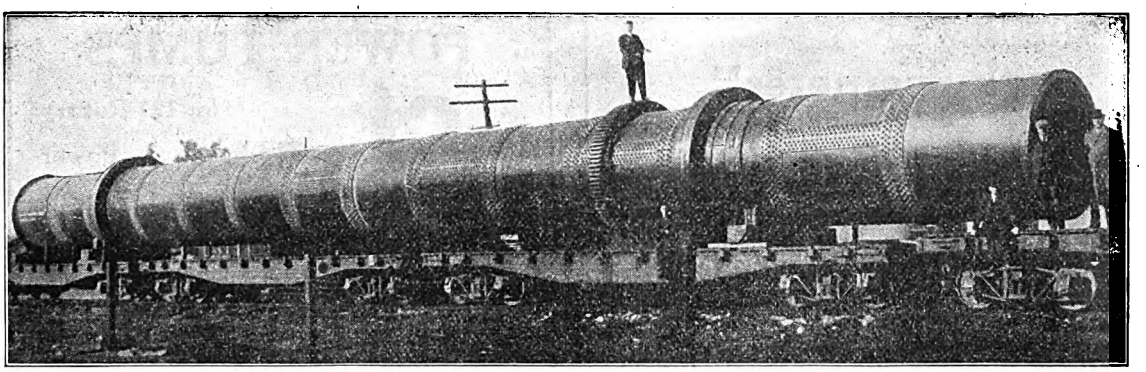

A Pipe That Made Four Carloads

C. L. Edholm

A single steel tube that formed a load for four flat cars was sent to California from Pennsylvania, where it was built as a rotary kiln for a big cement plant in Riverside County.

The dimensions of 120 feet by 12 made it the largest single piece of freight ever sent overland, and necessitated the use of a string of four cars on which the tube was mounted, with swivels on the end cars to allow for the curves. This construction resembled a monster piece of artillery and had a weight of 149,000 pounds. On its 4000 mile trip it attracted great attention, and when it reached California, it bore chalked or scratched inscriptions by the hundred, written by trainmen and others along the line.

CITY OF BISBEE HAS NO TIN CAN PROBLEM

The City of Bisbee, Ariz., is not put to any expense or trouble in disposing of the tin cans and other metal refuse which is a problem in most cities. In fact, tin cans are at a premium in that mining town, together with all kinds of old iron, even the sort which is considered worthless by the junk man.

The reason for this condition is that the waste water from one of the mines is very highly charged with copper in solution and it has been found possible to recover this metal by means of any kind of scrap iron. The process is exceedingly simple and inexpensive. The water which is pumped out of the shaft is allowed to flow through a system of troughs which are filled with junk. By a chemical process, known as replacement, the particles of iron are gradually eaten away and atoms of pure copper are left in their place, thus eventually all of the iron disappears and in its place is left the valuable red metal in a very pure state.

The process was discovered quite by accident. Waste water from the shaft was formerly allowed to run down a certain gulley which was used as a general dumping place for refuse. This continued for some time until by chance some one extracted a tin can from the dump and discovered that it had been replaced by copper, and from that time the mining company has made use of the same system, sending the water through wooden troughs for a great distance so as to extract all the copper. It is claimed that this method not only uses all the tin cans collected in the city, but that an occasional carload is shipped in from other camps near-by.

A PROTECTION FOR AMMONIA CONDENSER VALVES

As a protection for the valves on ammonia condensers which are subjected to all kinds of weather conditions, both winter and summer, I think the most simple and effective is what might be called the "tin-can" way.

By this I mean the covering of the valves with tin cans. Cans or pails of the proper size to fit over the handwheel will make an umbrella-like shield over the valve and protect the stem, packing gland stud or threads, and in fact the whole bonnet. The stems and bolts and threads should be well covered with cylinder oil and graphite and then the can put over.

Valves will be kept like new if this simple method is used for their protection. Or cone-shaped covers may be made at very little expense.—The Valve World.

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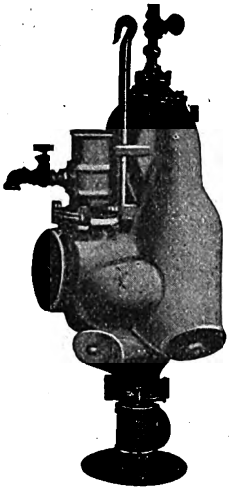
THE NEW "Pulsometer" STEAM PUMP

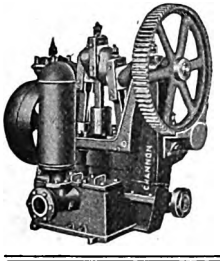


It is entirely automatic in action, requires no foundation or special skill to operate. It requires no oil and has very little mechanism subject to derangement. It will stand the roughest kind of usage and is ready for operation when the steam is turned on.

The price includes suitable strainer, either basket or mushroom, steam controlling globe valve with nipple and union and relief valve. The capacities given are estimated from results obtained in actual practice. Flat Valve Pumps are used for all general purposes. Ball Valve Pumps are used only for pumping liquids containing foreign matter, as waste of breweries, slaughter houses, pulp in paper mills, tan liquors, etc.

No.	Capacity in gallong per minute at different elevations with boiler power and steam pressure usually provided (approximate).			Dimensions		Prices Ask for discounts	
	25 Ft.	75 Ft.	H.P. Req'd	H. In.	Floor Space, In.	Flat Valve	Ball Valve
2	20	13	4	25	14x13	$ 90.00	$ 95.00
3	60	38	5	27	17x14	120.00	127.50
4	100	65	6	33	19x19	180.00	190.00
5	180	115	9	38	21x22	210.00	220.00
6	300	200	12	43	23x24	270.00	295.00
7	425	275	15	49	25x26	330.00	360.00
8	700	450	25	61	32x33	480.00	530.00
9	1,000	650	35	72	38x36	600.00	660.00
10	2,000	1,400	70	88	52x45	1200.00	.....

Information regarding elevations and capacities over 75 feet furnished on request.



Triplex Plunger Pumps

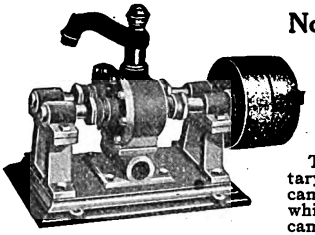
A representative line of belt driven Triplex Pumps for 130 pounds working pressure or 300 feet elevation.

Others for various capacities and duties quoted on application.

Gals per min.	Diam. and str'k	H. P., 100 lbs. pressure	Size of Pipes	Net Each
18	2½x4	1.6	1½ in.	$ 80.50
18	3x4	1.6	1½ in.	87.50
40	4x4	3.5	2 in.	136.50
60	4x6	5	2 in.	147.00
80	5x6	6	3 in.	227.50

Larger sizes on application.

POWER PUMPS

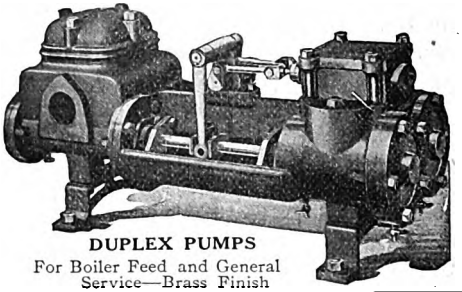


No. 121 Rotary Power Pumps

This improved rotary pump has four cam shaft bearings, which hold the pump cams or gears in perfect alignment. Popular, compact, useful and low in price.

No.	Cap. at 100 Rev.	Suct. Inches	Disc. Inches	Size Pulleys	Net Each
1	13 gals.	1¼	1	7x2½	$ 9.25
2	14 gals.	1¼	1	7x2½	10.50
3	17 gals.	1½	1¼	7x2½	13.25
4	27 gals.	1½, 2	1½	11x3	24.00
5	36 gals.	2, 2½, 3	2	11x3	26.00

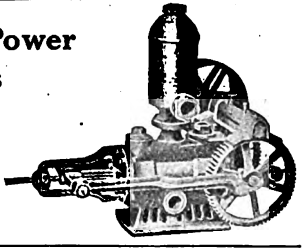
Duplex Piston Steam Pumps



DUPLEX PUMPS
For Boiler Feed and General Service—Brass Finish

Size Cyl. Stm. Water Stroke	Boiler H. P.	Pipe Connections				Net Each
		Stm.	Ex.	Suct.	Dis.	
2½x1½x3	30	⅜	½	1	¾	$27.50
3 x2 x3	50	⅜	½	1¼	1	30.50
4 x2½x4	80	½	¾	1½	1¼	46.75
4½x2¾x4	110	½	¾	2	2	53.00
5¼x3½x5	210	¾	1¼	2½	2½	70.00
6 x4 x6	330	1	1½	3	3	83.00

Bulldozer Power Pumps



Double geared adjustable stroke, brass lined cylinders, brass valve seats and springs, hard rubber valves, for 125 to 200 foot elevation.

No.	Net Price	Size Cylinder	Capacity Gals. Per hr.	Suct. In.	Discharge In.	Pulleys
500	$ 33.00	2x5	350	1	1	12x2
501	36.00	2½x5	650	1½	1¼	14x2½
502	39.00	3x5	900	1½	1¼	14x2½
503	45.00	4x5	1300	2	2	16x3
504	48.00	5x5	2000	2	2	16x4
352	90.00	6x10	5800	3	3	24x4
363	165.00	6x12, 16, 20	7200	4	4	30x6
362	45.00	3x5, 6½, 10	1400	2	2	16x4

All carried in stock for immediate shipment.
All above prices are net f. o. b. Chicago.

H. Channon Company.
Chicago

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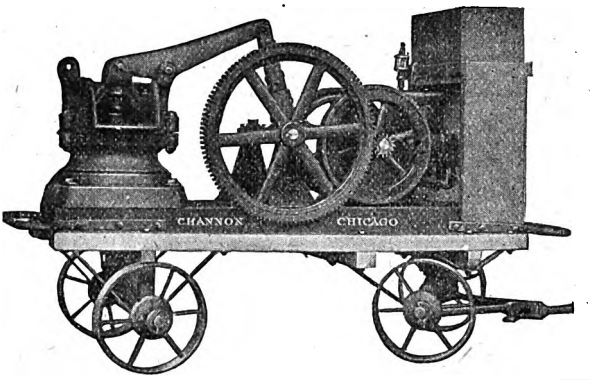
Channon Diaphragm Trench Pump Outfit



This is the ideal outfit for contractors, railroads, bridge builders, on foundations, excavations, trench and sewer work. It will handle more water with less power than any other pump of its class made.

The pump is the regular Channon Diaphragm Trench Pump, the engine is a well designed and carefully built gasoline engine, complete in every detail, built for the service it is guaranteed to give. The entire outfit is made for the heaviest kind of work, and is well able to give a good account of itself.

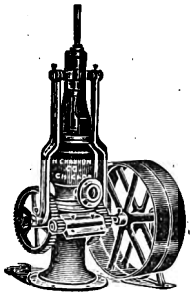
The outfit is made in two sizes, as follows:

No. 563. POWER OUTFIT with three-inch suction pump, fifteen feet of suction hose, gasoline engine drive. Complete on skids.....**$110.00**

No. 564. Same, with four-inch pump..... **135.00**

If mounted on truck as illustrated, add $15.00 for light truck, or $30.00 for heavy truck.

DEEP WELL WORKING HEADS



These working heads are built especially for deep well work. Their substantial construction insures great lifting power, strength and capacity.

No. 387

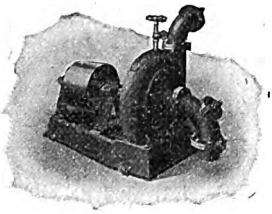
Five-inch stroke, capacity, 3-inch cylinder 360 gallons per hour at 40 strokes per minute. Pump rod connection ½x⅝ inches. Price.....**$17.50**

No. 359

Five-inch, 7½-inch and 10-inch stroke. The illustration represents No. 359. Capacities and horse powers required under different conditions shown below. Price.....**$42.50**

Sand-Gravel Dredging Pump

Belt Driven or Direct Connected



Pumped sand and gravel is the best because pumping breaks up any dirt or decayed stone, which passes off with the water.

These pumps are also ideal for the use of the contractor, who has large quantities of water to pump, frequently with a percentage of solids, as grit, sand, coal, decayed timber or vegetation.

SPECIFICATIONS AND PRICE LIST Belt Driven Pumps

They can be used in many lines of manufacturing for pumping solids mixed with sufficient fluid to secure flow.

Size of suction and discharge, inches.	Cubic yds. will pass per hour in solids when material is free and easily moved and when pump and other equipments are properly handled. (SOLIDS) 10%	20%	Brake H. P. recommended for each 10 ft. of Total Head.	Will pass solids, the largest dimension of which in inches is	Approximate shipping weight in pounds	Price, Standard Iron Pump	Price, Standard Pump having Shell, Runner and Suction Head made of steel castings
4	15	30	4	2½	850	$ 140.00	$ 190.00
5	20	40	6	2½	1250	180.00	270.00
6	30	60	8	4	1650	250.00	380.00
8	62	125	15	6	2900	380.00	600.00
8	62	125	15	6	3800	440.00	680.00
10	100	200	25	8	5000	540.00	800.00
12	150	300	30	10	7500	830.00	1,300.00
12	150	300	30	10	11000	1,300.00	1,700.00
15	225	450	50	10	15000	1,850.00	2,400.00
18	300	600	70	10	18000	2,200.00	3,000.00

Write for further information and discounts.

CHANNON Diaphragm Trench Pumps

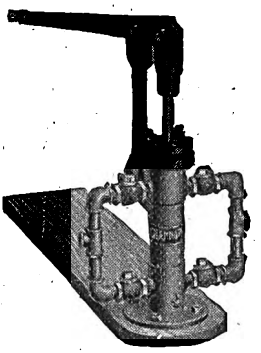
These pumps are the best and most efficient hand pumps on the market. They will quickly and easily dispose of large quantities of drainage or sewage matter, sanitary deposits, mud, gravel and quicksand. They have large, open valve ways especially adapted for handling this class of pumpage.

We make three sizes of pumps to take 2½, 3 and 4-inch diameter suction hose or pipe. The 3-inch and 4-inch size suction pumps are the most popular. We carry suction hose with couplings attached, in 8, 10, 12, 15, 18 and 20-feet sections, in stock.

Pump No.	Suction Hose, Inches.	Capacity Gal. per Hour	Net Price Side Suction	Net Price Bottom Suction	St'ard Complete Outfit With 12 ft. of Hose, Etc.
1	2½	1,500	$ 9.50	$ 9.00	.....
2	3	3,500	13.50	13.00	$35.00
3	4	6,000	30.00	26.50	65.00

Boiler Test Pump

Hand-Power Bronze-Fitted



This is a substantial double-acting pump, capable of being worked by one man against 500 lbs. pressure. It has brass piston (packed), brass piston rod and forged connections.

Piston 2 inches in diameter.

Length of stroke, 5 in.

Suction for 1-inch pipe.

Discharge for ¾-inch pipe.

Weight, 60 pounds.

Repacking or cleaning out is conveniently done by simply unbolting and lifting the pump off its base.

Special price on this Pump.....$17.50

H. Channon Company.

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SPECIAL SCHOOL ROOM HEATER

The cut below illustrates our new ROOM HEATER, which has successfully solved the problem of how to properly heat and ventilate the school room, church, store, etc., where a heating plant cannot be placed in the basement.

It is built on strictly scientific and sanitary principles; of the finest material and best workmanship obtainable. The appearance is neat and attractive.

This heater is a perfect ventilator, drawing fresh pure air from the outside, heating it properly for proper distribution throughout the room, and exhausting the impure air from the building; thus eliminating open windows, which cause drafts and colds, also eliminating the necessity of reheating the impure air that is in the room, both of which are a serious menace to health.

The jacket is non-radiating, making it just as effective in all parts of the room as near the heater.

Other features of this heater that make it attractive are:

Heater rests on a solid one-piece cast iron base.

Fire pot is extra heavy, corrugated, with cup joint absolutely gas tight.

Radiator is of either cast iron or steel, and has large radiating surface.

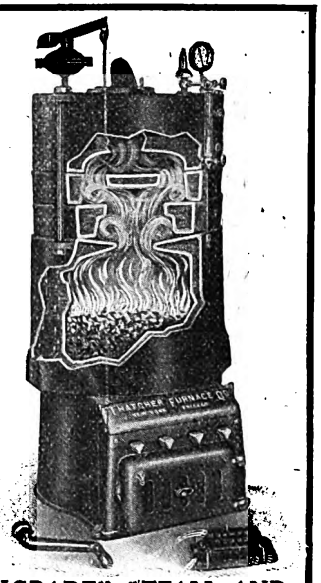
Ash pit is deep and roomy.

Dust tight sanitary feed-mouth to fire-chamber, with an unusually large opening, for easy firing.

Ratchet check damper prevents danger of accidental shutting and closing the draft.

Large water pan to supply proper amount of moisture.

Foot warmer at base of furnace can be supplied at slight additional cost.



"HIGRADE" STEAM AND HOT WATER BOILERS

We can furnish promptly all sizes from 400 to 12,000 feet.

The "Higrade" boiler is efficient, easy to install and operate, and economical in use of fuel. Our heating apparatus catalog gives complete information and prices. Special prices on steam and hot water plants quoted on application.

The most popular sizes for ordinary residence heating are:

No.	Capacity, Radiating Surface, Sq. Ft.	Net Price
31 for Steam	600	$87.50
210 for Hot Water	575	56.00

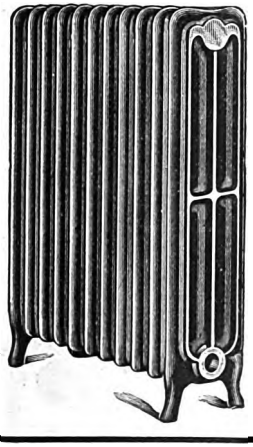
Other sizes shown and priced in special catalog.

RADIATORS

38-inch, 3 Column

Price 17c per foot

Other Sizes and Styles at Proportionate Prices



NET PRICES
SCHOOL ROOM HEATER

No.	Size of Room	Price, Less Castings	Price, with Wood's Smooth Iron Castings	Price, with Planished Iron Castings
28	20x33x12	$28.00	$37.00	$42.00
32	24x35x12	33.50	45.00	50.00
36	28x40x12	40.00	52.50	57.50
40	32x45x12	49.00	62.50	67.50
44	40x50x12	59.50	74.50	80.00
48	50x60x12	77.00	88.50	95.00

Above prices include heater, casings, check damper, firing tools, but do not include smoke pipe, foul air vents, or fresh air ducts. These vary according to the building, and prices can only be given when sketch of building is submitted.

WRITE FOR SPECIAL CATALOG OF HEATING APPARATUS

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Unable to Save?

Expert explains where cash goes—says cost of supplies keeps going up, purchasing value of the dollar going down.

From the Chicago Tribune

PROF. IRVING FISHER of Yale, famous as an economist, in discussing today the high cost of living said that salaried men, wage earners, and bondholders had been cheated out of about one-third of their incomes during the last eighteen years. He said President Hadley and others who had gone deeply into the matter were in favor of the standardization of the dollar as a unit of value, just as the yard as a unit of length has been standardized.

According to Prof. Fisher the prices of commodities have increased 50 per cent in less than two decades, and to stop social unrest and discontent he contends that a money unit is needed.

Supply of Gold Cause.

"As we expend our dollars day by day and week by week," he said, "few of us have any idea that the ability of the dollar to command goods is constantly changing. Figures in the form of index numbers of prices make it clear that the dollar today will secure for its owner only about two-thirds of the amount of commodities in general which he would have received in 1896.

"The cause of this varying purchasing power of our monetary unit is to be found chiefly in the vastly increased supply of gold and the increased use of the money substitutes for gold—i. e., checks.

"When the supply of a commodity is increased the normal result is the lowering of the price of that commodity. But the price of gold—nine-tenths fine—is fixed by law at $18.60 an ounce, which price can be secured for it any day in the year by presentation at the united States mint.

Salaries Fail to Respond.

"A rise in the prices of general commodities, however, would not be a cause for concern if the number of dollars in our incomes were increased correspondingly. But unfortunately such is not the case. The increase in incomes has not in all instances, nor even in most instances, kept pace with the increase in expenses.

"They tend to remain relatively fixed as compared to the prices of staple commodities. Consequently, while some people, mostly stockholders, have seen their incomes increase faster than their cost of living during the last eighteen years, many others, chiefly bondholders, salaried men, and wage earners, have not. These people have in effect been cheated out of about one-third of their income.

"Instead of fixing the weight and letting the value vary we need to make the weight vary in such a way as to keep the value fixed."

A NEW HOUSEHOLD INVENTION

One of the latest and a most important addition to the list of electric household appliances, is a motor-driven dish-washer, several varieties of which will soon be on the market. Not that there is anything startlingly new in an electric plate-cleanser. Of these there are already several excellent designs, but all intended for hotel or institutional purposes. Up till the present there has not been a strictly "family" dish-washer.

Perhaps it is not out of place here to call attention to the huge amount of time which the ordinary process of washing and wiping involves. There is probably no household of six or more in which at least three hours a day are not spent in this tedious and uninviting operation. And three hours is a quarter of the average woman's working day. Counting dish-washing and drying as unskilled labor, worth not more than twelve cents an hour, inside of year the washing-machine would more than pay for itself. It certainly is a safe prophecy to venture that within the next decade dish-washing by hand will be classed as a happily lost art.—Edison Monthly.

TWO PRACTICAL RECIPES.

From Penberthy "Engineer and Fireman."

Soldering Mixture.—A soldering mixture that will not corrode like chloride of zinc is made up of 1 lb. lactic acid, 1 lb. glycerine and 8 lbs. water. Adapted for canning fruit, etc., where a good soldering flux must be used.

To Split a Stone.—Trace a line on a large stone, drill holes close together along this line, drive plugs of wood into the holes and then wet them. The swelling of the plugs will split the stone.

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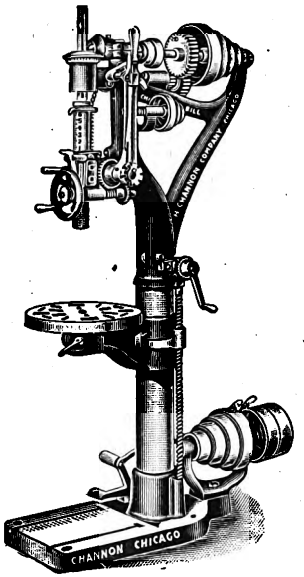
CHANNON 20-INCH UPRIGHT DRILL



SPECIAL

NET PRICE

$79.50

CHICAGO

IMMEDIATE SHIPMENT

A high-class drill at a reasonable price

Fit for the finest shop—has all the modern improvements and automatic features found on drills costing many times the amount.

FEATURES

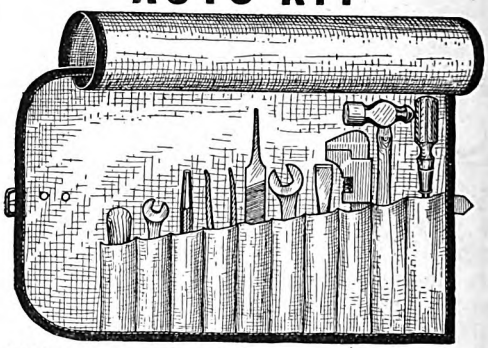
Double back gears—machine cut.
Ball bearings - Square Base - Eight speeds Instantaneous control.
Three complete feeds: Power feed
Screw feed Hand Lever feed
Graduated Spindle, counterbalanced
Automatic Stop attachment with quick return.
All the adjusting features are close to the operator's hand and so arranged that the various operations, such as starting and stopping spindle, changing speeds, engaging and disengaging from self-feed to lever-feed, lowering and raising table, etc., are under practically instantaneous control by the operator.

CAPACITY AND SPEEDS

Drills holes 0 to 1½ inches to the center of a 20 inch circle. Spindle is 1¼ inches in diameter. Bored for No. 4 Morse Taper. 4-Step cone pulleys for 2 inch belt; pulleys are 8x2½ inch tight and loose. Speed for ordinary drilling 300 RPM. Shipping weight 805 pounds.

H. Channon Company

"BULLOCK SPECIAL" AUTO KIT



This kit contains the most essential tools for use around automobiles, motor boats and small gasoline engines. All tools warranted.

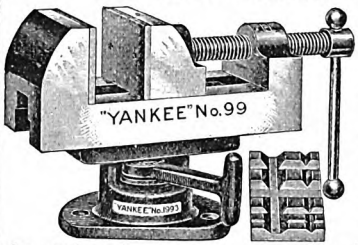
THE KIT CONTAINS:

One Ball Pein Hammer One Punch
One 9" Adjustable Auto Wrench
One Screw Driver One Flat File, with handle
One Combination Plier One ½" Cold Chisel
One Double End Wrench (¼ and 5/16" nuts)
One Double End Wrench (⅜ and 7/16" nuts)

SPECIAL NET PRICE FOR JUNE ONLY **$1.74**

As we have but a limited supply of these kits, it is best to order ot once.

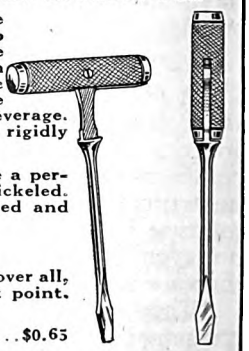
TWO NEW PRACTICAL TOOLS



This vise will be quickly appreciated by tool makers and machinists where work can be rigidly held either on bench or machine. Sides and bottom of vise are machined smooth and as vise can be detached from its base, it can be used on drill press, milling machines, etc. The clamping device on base holds vise firmly for use in any position. Vise has tool steel jaws and an extra hardened steel block furnished for holding irregular shapes. A high grade vise at a low price.
Jaws 2⅞" wide, 1⅞" deep, opens 3⅛". Extreme height 5¾", length over all 8¾".
Price, complete, each.....$4.00

A TOOL YOU HAVE BEEN LOOKING FOR

One end of folding T handle can be used as a hammer to start screw; handle can then be changed to drive screw as an ordinary screw driver, and the screw can be set firmly by the T handle which gives a great leverage. Spring in handle holds blade rigidly in either position.



Handle is knurled to secure a perfect grip, and is heavily nickeled. Blade is drop forged, hardened and oil tempered.

A good, substantial tool.

Length of blade 6"; length, over all, 10"; weight 14 oz.; width at point. ½"; thickness 5/64".

Price each.....$0.65

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Chain Hoists and Trolleys

The overhead or tramrail system of handling and transporting heavy materials possesses marked advantages in convenience, speed, and efficiency over other methods of handling heavy loads.

Great saving can be made with this system in both small and large installations.

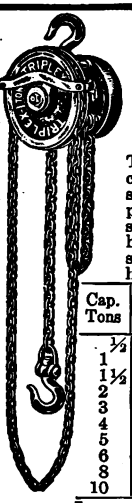
One man can handle loads many times as heavy as by other methods in about one-fifth the time required by the next best way—he can handle the load wherever the trolley runs, from one end of the plant to the other with switches and turn-outs wherever necessary.

Installation of I beam track is a simple matter and we can supply promptly, straight or curved track all drilled and ready to attach with hangers, switches, etc.

TRIPLEX

Spur-Geared Hoists

This is the most economical hoist to buy—as with it one man can hoist heavier loads—with less effort (pulling 82 lbs. he can lift one ton) and at greater speed than with any other hoist made.



The only **"all-steel"** chain hoist. It has steel gears, (balanced planetary system), steel sheaves, steel yokes, steel hooks and electrically welded steel chain—in fact from hook to hook "a line of steel."

Cap. Tons	Std. Lift, Feet	Extra Lift, Feet	Pull to Lift Full Load, Lbs.	Wt., Lbs.	Price Each
½	8	$0.72	62	53	$28.00
1	8	.76	82	80	36.00
1½	8	.80	110	124	48.00
2	9	.84	120	188	56.00
3	10	1.20	114	200	72.00
4	10	1.28	124	283	88.00
5	12	1.72	110	380	112.00
6	12	1.72	130	390	132.00
8	12	2.16	135	455	160.00
10	12	2.60	140	570	192.00

Larger sizes upon request.

The load is safely sustained at any point by a device entirely independent of the hoisting mechanism.

The **Triplex** is the hoist we offer for the greatest strength, safety, efficiency and longest life.

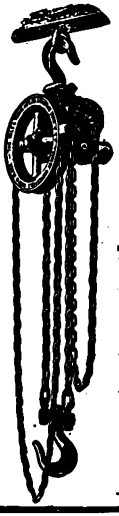
THE CHANNON

Differential Hoist

Cap. Tons	Reg. Hoist Feet	Extra Hoist Per Foot	Weight Lbs.	Price Each
¼	6	$1.12	20	$ 7.20
½	7	1.12	31	8.40
1	8	1.20	53	11.20
1½	8½	1.28	90	14.40
2	9	1.36	128	18.00
3	10	1.60	167	24.00

Contains fewest number of parts and costs less than other types.

Holds the load at any point and is suitable for ordinary intermittent hoisting of any kind.



DUPLEX

Worm-Geared Hoist

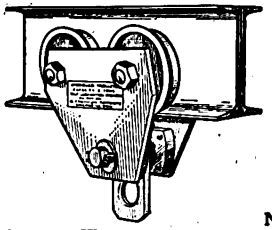
In this hoist the power is transmitted from the hand chain to the load chain through a worm and screw—enclosed and running in a bath of oil.

Cap. Tons	Std. Lift	Ex. Lift Per Foot	Pull to Lift Load	Weight, Lbs.	Price Each
½	8 ft.	$1.02	68 lbs.	43	$21.25
1	8 ft.	1.28	87 lbs.	57	25.50
1½	8 ft.	1.49	94 lbs.	76	34.00
2	9 ft.	1.70	115 lbs.	104	42.50
3	10 ft.	1.87	132 lbs.	180	63.75
4	10 ft.	2.04	142 lbs.	215	80.75

No. 1 Portable Shop Crane

With this machine the loadis both hoisted and transported, making an invaluable addition to any shop for serving machine tools, etc. Capacity of the No. 1 is 1½ tons with 5 ft. 5 in. height of hoist, weight 665 lbs.

1½ Ton
Price $60.00



"Channon"

Four Wheel Equalizing I Beam Trolleys

Wheels are large size and revolve loosely on the shafts. Wheels have our self-lubricating graphite bronze bushings which require no oil or attention.

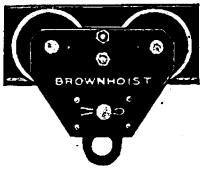
NET PRICES

Cap. Tons	Std. I Beam	Greatest Distance Between Supports	Price, Plain
½	5 in.	13 feet	$12.80
1	6 in.	14 feet	16.00
1½	7 in.	14 feet	20.00
2	8 in.	15 feet	24.00
3	9 in.	16 feet	32.00
4	10 in.	16 feet	40.00

Other sizes upon request.

"Brownhoist"

Patent I Beam Trolleys



With equalizing feature, wheels pressed onto axle, each of the four wheels travels in two oil reservoir bronze bearings.

NET PRICES

Cap. Tons	Std. I Beam	Greatest Distance Between Supports	Price, Plain	Price, Geared
½	5 in.	13 feet	$12.80	.....
1	6 in.	14 feet	16.00	$40.00
1½	7 in.	14 feet	20.00	48.00
2	8 in.	15 feet	24.00	52.00
3	9 in.	16 feet	32.00	56.00
4	10 in.	16 feet	40.00	76.00

Other sizes upon request.

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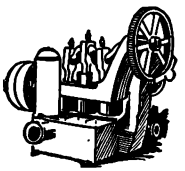
Bargains in New and Used Machine Tools, Etc.



POTTER TRENCH OUTFIT

1—Potter Sewer and Trench Excavator and Conveyor, with ¾ yard Hayward Orange Peel Bucket, including a Lidgerwood 7 x 10 Double Cylinder double friction Drum, Link reversing Hoisting engine with boiler. All mounted on heavy channel iron frame, self propelling. Also 30-lb. Trail and uprights equipped with rollers and connecting channels for extension back filling equipment. Cost new $4,600. Price....**$2,000.00**

CONTRACTOR'S HOISTING ENGINE

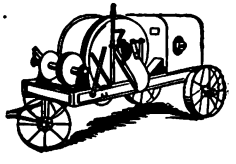
1—7x10 Double drum, Lidgerwood link reversing; with Boiler; just rebuilt; fine.....**$825.00**

CRANES AND HOISTS

1—Five-ton Double Bridge Beam Hand Traveling Crane with geared bridge and geared trolley. Span, 25 ft.

1—Two-ton—same as above.
Prices upon application.

1—Six-ton double Bridge Beam Hand Traveling Crane Span 23 ft. 2 in; Geared Bridge. Trolley propelled by endless chain extending full length of bridge and operated from floor by crab suspended from one end of crane. Price.....**$250.00**



SCREW MACHINES

1—Bardons & Oliver, hand screw machine in fine condition.....**$275.00**

1—12"x6' Turret Lathe, 6-¾" holes in turret, ⅝ hole in spindle, lever feed to turret, hand operated turret with latch, with chuck and countershaft, in fine shape... **80.00**

1—Automatic Treading Lathe, for threading work up to 6", 3" long, two chucks, face plate, oil pan and pump, splendid machine in fine shape..... **300.00**

LATHES

1—Blaisdell Engine Lathe, 17"x8' bed, change gears for screw cutting, friction countershaft, steady rest and face plate.....**$250.00**

GRINDERS

1—No. 4 Clisbe Grinder on pedestals..... **17.50**

1—Cyclone grinder, spindle 3' 6" long, 1¼ between flanges, good long bearings, pulley 6"x5", height to center of spindle 31".. **25.00**

PUNCHES AND SHEARS

1—Style G Badger, single end, 15-inch throat capacity ¾ in ¾, shears ¾ flats, 1¼ round. Complete with cross cut shear, splitting shear and angle shear. New...**$495.00**

1—No. 10½ Ferracute Punch Press..... **125.00**

1—No. 17 Williams White double end punching and shearing machine, 8-inch throat. Capacity ⅝-inch hole in ⅝ material. Will cut 1⅛ round bars and shear ⅝x3 flat bars. Second-hand..... **325.00**

MISCELLANEOUS

1—J. W. Adams, No. 3 double head bolt cutter, will thread bolts from ¼ to ⅝. With automatic opening die heads and oil pump.**$175.00**

1—No. 2 Garvin Tapping Machine, capacity ¼ to ¾..... **100.00**

1—Baker Bros. Style "F" Drilling Machine, hand feed, spindle has 6" travel, No. 4 Morse Taper socket, table 17x20, tight and loose pulleys 11x3, weight 3,000 lbs.. **135.00**

1—Six Spindle Dwight Slate sensitive drill, capacity ⅜ automatic power cam feed, sliding heads, table 44x12..... **100.00**

1—20" Rockford Back Geared Shaper complete with vise and countershaft, new machine..... **375.00**

1—No. 1 Pratt & Whitney Plain Milling Machine..... **190.00**

1—Sanborn Paper Cutter, 30", tight and loose pulleys 14x3½, fly wheel, 24x2½, has table gauges..... **100.00**

PUMPS

1—6-inch Centrifugal Pump, direct connected to a 6x7½ steam engine. Capacity 1,000 gal. per min. 25-foot head..... **250.00**

1—6x4x6 Fairbanks Duplex Boiler Feed Pump, overhauled and in good shape. Capacity 65 to 98 gal. per min. Will feed 400 H.P. boiler. Steam 1", Suction 3", Discharge 3"..... **45.00**

1—No. 4 Knowles horizontal boiler feed or pressure pump. Single cylinder, 5½x3¾ x7. 2-inch suction, 1½-inch discharge, second-hand.....**$ 80.00**

1—No. 3 Nye Steam Pump, square box style, 4-inch suction, 3-inch discharge..... **105.00**

H. Channon Company. Chicago.

ORANGE PEEL BUCKETS

1—21 cu. ft. Standard Hayward. No signs of use.....**$500.00**

1—One cu. yard Standard Hayward; used 2 months; Sioux City, Iowa..... **525.00**

PILE HAMMER

1—No. 3 McKiernan-Terry Steam Pile Hammer.....**$150.00**

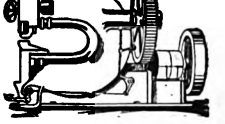
1—Set Ironwork and Woodwork for Roller Land Pile Driver with 3,000- pound hammer and cap. Leads 33 ft..... **98.00**

1—No. 9 (Used) Sturtevant Blower.... **45.00**

SPECIAL CUT-OFF, SAWING AND BORING MACHINE FOR "MILL CONSTRUCTION" BUILDINGS

(Used on one Job only.)

1—Large Combination Sawing and Boring Machine. Made up of two independent saw frames and four duplex boring machines, including two 36-inch and two 40-inch circular saws. At one operation will bore eight holes, as well as cut off both ends of heavy mill timber up to 18x18 inches. The spacing of holes also distance between saws, is adjustable. Will do the work of sixteen or more carpenters. Cost new $1,600.00. Selling price.....**$500.00**



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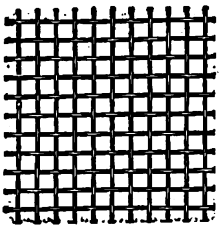
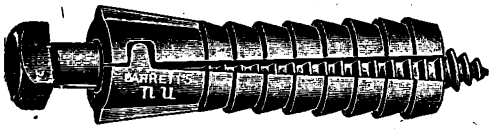
WIRE CLOTH



Plain, Galvanized
Bronze, Brass
Poultry Netting
Fly Screen
Mining Screen
Foundry Riddles
Sand Screens
Coal Screen Cloth
Made in all meshes
Write for prices

EXPANSION SHIELDS



Screw engages first thread without expansion. Every turn forces thread one turn forward, with one degree of expansion. Have deepest thread made, keeping rough edge of screw free from bottom. Lugs lock securely in assembly. Threads in positive pitch register to fit screw. Threads cut clean with sand blast.
Write for prices on the sizes and quantities you need.

STEEL & IRON

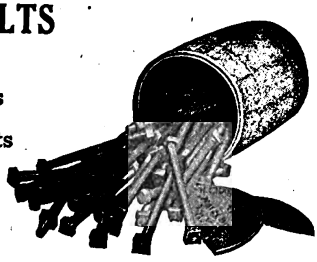
Bars, Bands, Plates
Structurals
Angles, Rails
Round and Square
Twisted Reinforcing
I Beams
Sheets, Channels
Triangle Mesh
Concrete Reinforcement
Annealed Wire
Double Headed Nails
Common Wire Nails
Cement Coated Nails
Cold Rolled Steel

TRACK TOOLS

Picks, Mattocks
Tamping Bars
Lining Bars
Chisels, Rail Forks
Striking Hammers
Stone Hammers
Levels, Spike Mauls
Spike Pullers, Spikes
Track Bolts
Rail Benders
Splice Bars
Track Wrenches
Track Tongs
Wheel Barrows
Shovels, Etc.
Crow Bars
Claw Bars
Sledges
Track Gauges

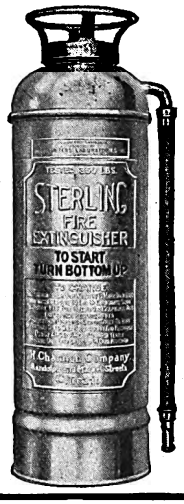
NUTS & BOLTS

Hot Pressed Nuts
Cold Punched Nuts
Semi-Finished Nuts
Thumb Nuts
Machine Screw Nuts
Elevator Bolts
Plow Bolts
Toggle Bolts
Stove Bolts
Machine Bolts



Fire Protection Material

IT'S THE FIRST FEW SECONDS THAT COUNTS!



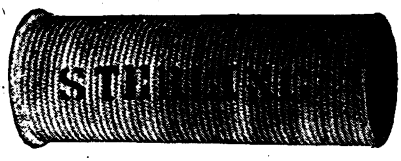
Practically everyone who knows is agreed that the time to extinguish a fire is the very moment it starts, or as near to that moment as possible. Next to the automatic sprinkler, the Sterling Chemical Fire Extinguisher is the best thing to use to nip a fire in its incipiency.

This extinguisher will put out as much fire as 120 gallons of water, and far more quickly without the attendant damage.

Every shop, factory, store, office, and home should have an ample supply of Sterling Extinguishers so placed that they will be instantly available from any part of the premises.

NET PRICE
Sterling Chemical Extinguishers, Each.....$9.00

STERLING MILL HOSE



Price
2½ inch
40
cents
Per foot

Made of best quality long fibre cotton with a high quality rubber lining.

PRICE PER FOOT

Size, Inches.....	1	1¼	1½	2	2½
Per Foot.....	$0.20	$0.23	$0.25	$0.33	$0.40

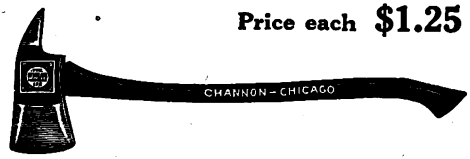
FIRE PAILS
(GALVANIZED)

Round bottom. Plain galvanized, stenciled in red "For fire only."

Capcty Quarts	Weight per doz. Pounds	Price per dozen	Price Each
10	25	$2.45	$0.25
12	27	2.65	.30
14	30	2.90	.35

STERLING FIREMAN'S AXE

Price each $1.25



Made to conform to the specifications of the Fire Underwriters. Head and handle enameled red, point and blade highly polished. Width of cut 5 inches.
Price, each.....$1.25
Brass Hangers, for attaching to wall. Per set..... .25

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Channon's Review
Published Monthly by
H. Channon Company.
Market and Randolph Streets.
Chicago
JOHN LUCIEN JONES, M. E. - - Editor

We are in receipt of a letter from one of our Eastern correspondents, who is in close touch with business conditions, in which he says:

"Since the Lusitania disaster, the eastern manufacturers detect a lull in new trade. No one is reporting an appreciable cancellation or suspension of orders, but there is an undeniable disposition to await developments. As to whether our foreign differences will be permanently adjusted by diplomacy, international business men are making no public prognostications. Some of our good friends among the German importers believe that Germany will not be inclined to invite hostilities at this unpropitious time, while the Italian situation is strained, and when the U. S. Government is host to official commercial representatives of nearly all the Latin-American countries. This is a commercial war, and it is argued Germany needs the good will of the Americas to regain their commercial status when hostilities terminate."

"In the Pittsburgh district increased iron and steel exports and railroad orders are stimulating confidence. What is to be hoped now is that other roads will follow the lead of the Penna. lines, with equipment orders. It is estimated that 200,000 tons of plates will be required for the cars already contracted for if reports are correct, and the market is holding more firmly to $1.20 base. Structural material has not as yet felt the buying impetus to such an extent as have plates, but $1.20 is being maintained for ordinary business with the shading of a dollar or two on particularly desirable tonnage for prompt shipment. The official advance to $3.60 on No. 28 gauge galvanized sheets has been followed by most of the independents, but concessions of $2 to $4 per ton are procurable. The maintaining of the old differential between gauges makes the advance on heavy sheets much greater in proportion to the increase in Spelter cost than on light gauges. Therefore, more liberal concessions below official prices should be expected on heavy than onlight sheets."

A contractor has a job some distance from a buying center. He needs some shovels, wheelbarrows, rope, an engine, a pump, and other equipment. The job must be finished in record time.

Q. Where will this man send for this equipment?

A. He will order of a house that has a reputation for two things, viz.:

ALWAYS Furnishing Reliable Apparatus,

ALWAYS Making Prompt Shipments.

It is well known that many of the customers of H. Channon Company continue to purchase their necessary supplies and equipment from this company because of the fact that they feel no uncertainty as to the reliability of the goods they will receive and because they have had experience with and appreciate prompt shipments.

NOTE CAREFULLY

The following 32 pages are advance pages for our new NET PRICE Catalog No. 75. A number of these pages will appear in Channon's Review each month and by using them you will be able to keep up to date until Catalog No. 75 is issued.

Beginning with page 33, and continuing for nine or ten pages, are listed and net priced a line of automobile and automobile tire accessories, which are seasonable at this time.

FOLLOWING 32 PAGES ARE STRICTLY NET

ALL DISCOUNTS HAVE BEEN TAKEN OFF.

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"Channon Special" Lawn Mower

NINE INCH WHEELS---4 BLADES

LOW NET PRICE

$3.95

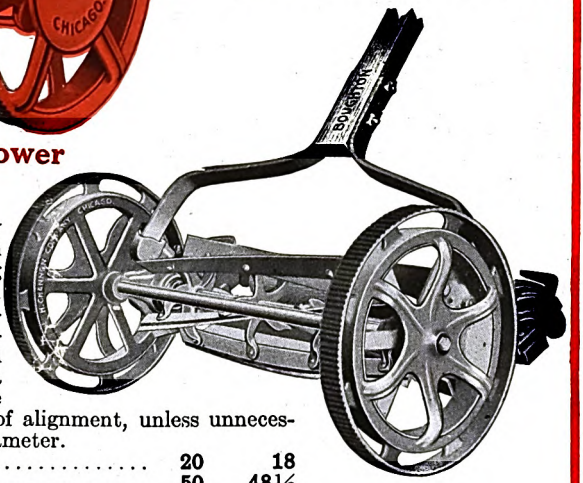
Ball Bearing

This mower is built of strictly first class materials throughout. It is strong and well finished and of exceptionally light draft; fitted with patent ball bearing adjustments, which are the simplest and most effective made. Has highest quality steel balls, cups and cones, uniformly hardened, accurately ground and dustproof. Reel is 5¾ inches in diameter and has four blades. Cutter bar is crucible steel. Wheels are 9 inches in diameter.

Width of blades, in.	18	16
Weight, pounds...	35	33
Price Each.....	$4.45	$3.95

Boughton Ball-Bearing Lawn Mower

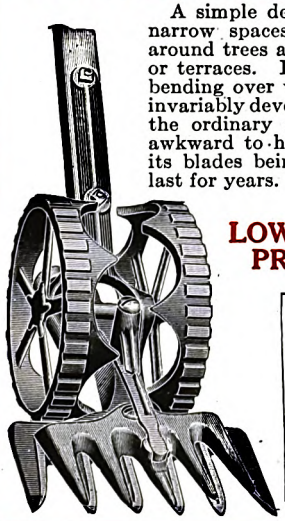
Eleven Inch Wheels--Five Blades



This is a strictly high grade machine of the very finest quality. It is light running and noiseless in operation and for even cutting and long wearing qualities cannot be excelled. Balls, cups and cones are of highest grade steel, uniformly hardened and dustproof. The reel is 5¾ inches in diameter, has five blades of special manganese steel and is adjusted to crucible steel cutter bar by a special adjusting and locking device, making the frame absolutely rigid and impossible to get out of alignment, unless unnecessarily tampered with. Wheels are 11 inches in diameter.

Width of blades, inches	20	18
Weight, pounds	50	48½
Price Each	$9.50	$9.00

"The Victor" Handy Grass Clipper



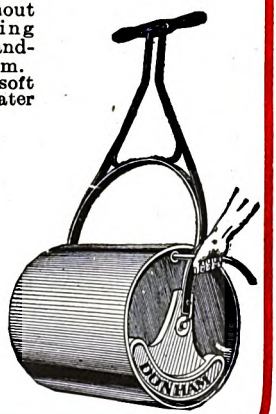
A simple device for trimming lawns in narrow spaces, along walks and drives, around trees and shrubbery and on banks or terraces. Dispenses with the old time bending over with slow sheep shears that invariably developed backache and replaces the ordinary mower where the latter is awkward to handle or there is danger of its blades being dulled. The Victor will last for years.

LOW NET PRICE $2.50

"Water-Weight Lawn Rollers

This is one of the handiest, most popular and generally used lawn roller on the market. The rollers are smooth on the face; their outer edges being rounded to avoid cutting the lawn. Made with roller bearings, and in one or two sections, with or without outside counterbalancing weights as ordered. Handsomely finished in aluminum.

Can be used empty for soft sod; or can be filled with water or sand. Thus, each "Water-Weight" roller is the equivalent of three ordinary rollers.



PRICES—"Water Weight" Rollers

Number	Size of Roller, Inches	Weight, pounds: Empty	Weight, pounds: Filled with Water	Weight, pounds: Filled with Sand	Counter-weights Furnished?	Net Price
5	18x24	75	300	500	No	$ 8.75
2	14x20	120	260	360	Yes	7.75
4	18x24	135	360	560	Yes	9.75
6	24x24	185	560	860	Yes	12.35

H. Channon Company. Chicago

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GARDEN HOSE

OUR 1915 LINE OF DEPENDABLE GARDEN HOSE. SATISFACTORY SERVICE IS GUARANTEED

ELASTIC

PRICE

14c

per foot
Coupled

A double braid moulded hose, light in weight, flexible, FULLY GUARANTEED. Comes in any length up to 500 feet.

7-PLY CHANNON

PRICE

13c

per foot
Coupled

A very heavy, seven-ply hose, designed for heavy duty, and will not kink. It is capable of standing very high pressure, and is ABSOLUTELY GUARANTEED. Made in red only. Comes in 25 and 50-foot lengths.

BULLOCK

PRICES

4 PLY	3 PLY
12c	11c

per foot
Coupled

Our Bullock brand has been our standard for quality for many years. It is made in three or four-ply, heavy duck construction, first quality throughout. A hose we can recommend for all general purposes. Comes in 25 and 50-foot lengths.

LAWNHOSE

PRICE

8c

per foot
Coupled

A special hose, made in ¾-inch, 5-ply heavy sheeting, suitable for medium pressures, and all ordinary domestic uses. Guaranteed for one season for domestic purposes. Comes in 25 and 50-foot lengths.

All Above Hose ¾-inch

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BULLOCK BICYCLES GUARANTEED "None Better Made"

PRICE

$22.50

NET

No. 11 Bullock Roadster

SPECIFICATIONS

FRAME—Either 20, 22, or 24-inch, made of one-inch, 19 gauge seamless steel tubing, all flush joints.
WHEELS—28 inch.
FORK—Seamless fork sides, nicely tapered. Drop forged crown.
CRANK HANGER—Drop-forged, one piece, 7-inch cranks; removable without disturbing cups.
FINISH—Handsomely enameled in Battleship Gray, with red head and double panel gold stripes. Or bright red, with black head, and double panel stripes.

FRONT HUB—New Departure.
COASTER BRAKE—Corbin or New Departure.
RIMS—One-piece maple, enameled to match frame.
CHAIN—3-16-inch English Twin Roller.
SPROCKETS—26-tooth Diamond pattern, front; 9-tooth rear.
SPOKES—No. 1 quality, 24-16 gauge, swaged piano wire; 32 in front, 36 in rear.
TIRES—28 x 1½-inch Thorn-Proof Thick Tread, 4-ply guaranteed single tube.

HANDLE BARS—Forward extension, with wound leather grips.
SADDLE—Suspension cushion spring.
PEDALS—English, wide pattern.
TOOL BAG—Round, containing pump, wrench, oiler, and kit.
MUD GUARDS—Steel, front and rear, double braced. Enameled to match frame.
WHEEL STAND—Dead finished to match frame.

A BICYCLE WE ARE PROUD TO SELL

H. Channon Company.

AND YOU WILL BE PROUD TO RIDE

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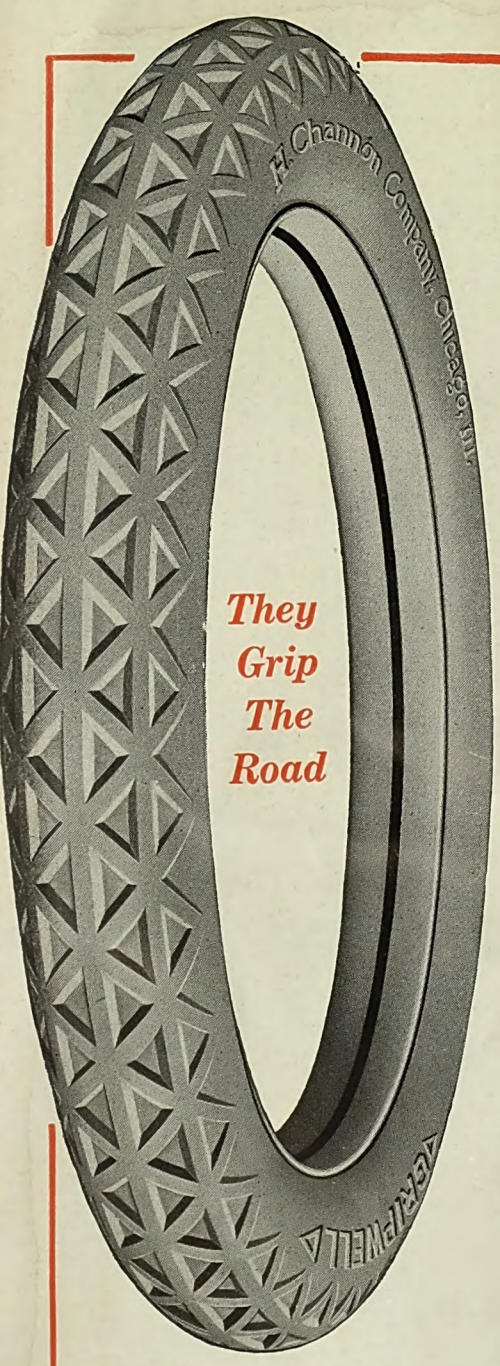

GRIPWEL

Guaranteed

SPECIAL NE

NO FURTHER DISCOUNT

SIZE	SMOOTH TREAD	NON-SKID	GARNET TUBE	GRAY TUBE
28×3	$ 7.50	$ 7.90	$ 2.25	$ 2.00
30×3	7.70	8.30	2.25	2.05
32×3	8.70	.....	2.45	2.20
29×3½	10.40	10.95	2.60	2.35
30×3½	10.00	10.75	2.60	2.35
31×3½	10.70	11.25	2.70	2.45
32×3½	11.75	12.35	2.75	2.50
34×3½	13.15	13.80	2.90	2.60
36×3½	13.80	.....	3.05	2.75
30×4	15.15	15.85	3.55	3.20
31×4	15.85	16.65	3.60	3.25
32×4	16.10	16.90	3.70	3.35
33×4	16.80	17.60	3.85	3.45

NOTE

Owing to the heavy demand for tires this year there is already a shortage, especially in small sizes. On this account we advise you to order at once to insure prompt delivery.

H. Channon Com

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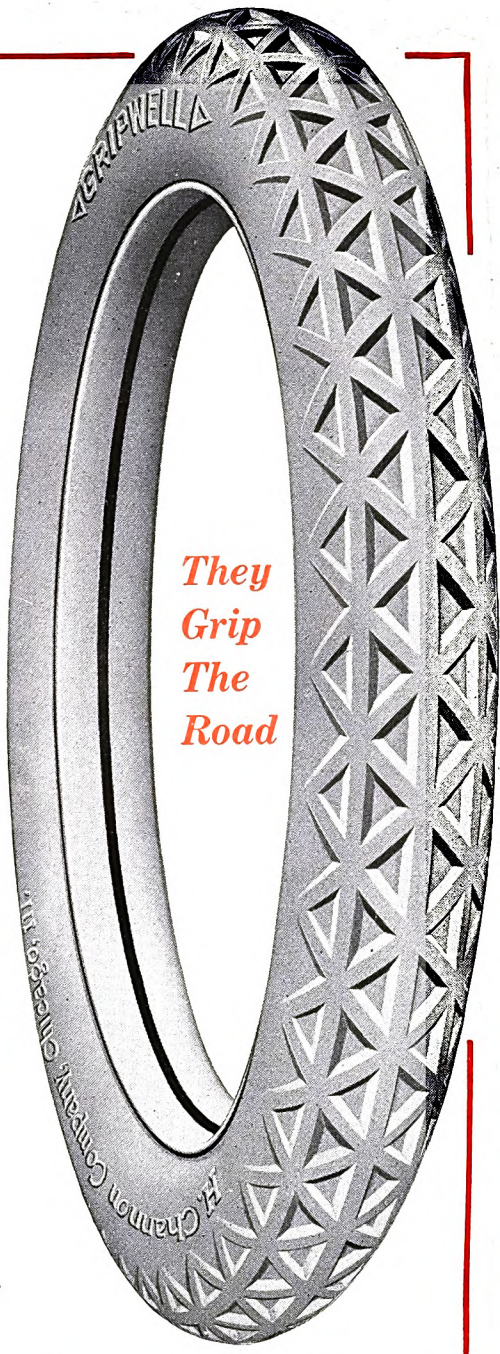
The Effective Non-Skid of the Gripwell Tire



ELL TIRES

eed 3,500 Miles

IAL GET PRICES

NOT EVEN FOR CASH

SIZE	SMOOTH TREAD	NON-SKID	GARNET TUBE	GRAY TUBE
34×4	$17.00	$17.95	$ 3.95	$ 3.55
35×4	17.80	18.70	4.00	3.60
36×4	18.10	19.00	4.10	3.70
37×4	.....	.....	4.25	3.80
32×4½	.....	.....	4.75	4.30
34×4½	22.95	24.15	4.90	4.40
35×4½	23.80	25.00	5.00	4.50
36×4½	24.15	25.30	5.15	4.60
37×4½	25.00	26.25	5.20	4.70
35×5	.....	.....	5.95	5.35
36×5	27.45	28.85	6.10	5.45
37×5	28.45	29.90	6.20	5.55

As Good as Any and Better than Some

Company Chicago.

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Channon's Review Order Blank

H. Channon Company. Chicago.

TEAR OUT AND USE

Date _____

Please ship to _____

Town _____ *County* _____

_____ *State* _____

Mail, Express, Freight

Quantity		Articles	Prices

Total Amount Enclosed . . . . . $.

Sign here _____

P. O. Address _____

When Ordering Remember

GRIPWELL TIRES

Guaranteed 3,500 Miles

For Special Low Net Prices See Center Page and Back Cover

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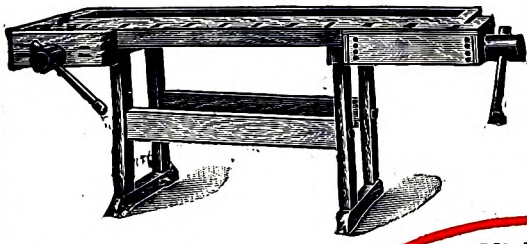
Cabinet Makers' Bench

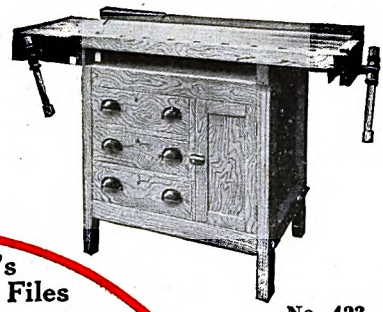


Our **No. 1** Bench is substantially built throughout. It has a 2⅛ in. thick, glued and finished top, back of which is a well 10 in. deep, used as a recess for tools; the legs are solid maple and measure 2x3 in.

Equipped with our No. 19 Bench Screws, 2½ in. in diameter; these screws have saw cut threads.

No. 1. 6½ feet long, 24 in. wide, 16 in. maple top, 34 in. high; weight, 180 lbs. Price each....**$9.90**

Manual Training Bench



No. 423. Dimensions, 4 feet long, 22 inches wide, 32 inches high with 13-inch glued up maple top, 1¾ in. thick and a well for tools 8 in. wide. Fitted on front and end with steel screw vises. Drawers 18x16x5 in., cupboard 18½x18¼ x10 in. Top and cabinet shellaced; weight, 160 pounds. Price each...**$13.75**

No. 21. Exactly the same as above except without drawers or cupboard; weight, 120 pounds. Price each....**$6.50**

Nicholson's
Great Western Files

Specials For JUNE Only

10" Mill Files
93 CENTS PER DOZEN

6" Slim Taper Saw Files
51 CENTS PER DOZEN

NOTE: These low prices can only be secured by mentioning Channon's Review in your order.

Write for information and prices on other styles and sizes of files.

Carpenters' All-Steel Wood Chisel

Made of high grade tool steel tempered so as to retain perfect cutting edges. Handle will not crystallize or break from hammering.

The most serviceable wood chisel made.

NET PRICES

Cutting Edge Inches	Length over all Inches	Wt. Each Lbs.	Net Price Each
½	9	¼	$0.45
¾	10	½	.50
1	11	1	.60
1¼	11½	1¼	.65
1½	12	1⅝	.75

A Vise and a Couple of Boards

75c WILL HOLD A SAW

BUT—

A No. 1-AA Noiseless SAW VISE IS MUCH BETTER

It Has Rubber Cushion. Jaws Open and close Instantly by Lever.

Costs Only 75 Cts.

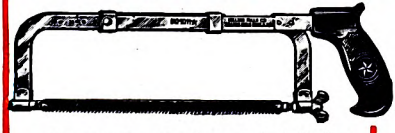
Stanley Adjustable Iron Planes

Well Known and Well Liked
Either Flat or Corrugated Bottom

NET PRICES

Number	Inches Length	Cutter Width Inches	Net Price
3	8	1¾	$1.42
4	9	2	1.60
5	14	2	1.80
6	18	2⅜	2.30

Pistol Grip Hack Saw Frame



The handle affords a perfect fit for any size of hand. Extensible for blades from 8 to 12 inches, with scale for the different lengths. Blades may be faced in four directions. Depth of cut 3½ inches. Price each..**$1.15**

Perfect Handle Draw Knife

This tool is drop forged from solid piece of crucible steel. The "perfect handle" will never pull off. Every tool warranted.

Size, inches	8	10	12
Prices, Each.....	$0.80	$0.90	$1.00

H. Channon Company.

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GARDEN ACCESSORIES

Special Lawn Sprinkling Outfit

Consisting of 50 ft. of ¾-inch 7-ply Channon Red Garden Hose, coupled. One No. 2 All-Metal Reel, with galvanized Drum

COMPLETE *for* $8.50 NET

One Diamond Spray Nozzle, One Elgin Patent Low Down Sprinkler.

Every item in this outfit is first class in every particular. The outfit is a bargain at the low price asked.

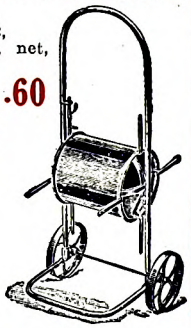
No. 1, Price, Net... $1.35

Hose Reels

No. 1. All metal reel, with galvanized drum, Capacity 100 feet of garden hose. Wheels are 22 inches in diameter. Handles, 28 inches long. All joints electrically welded. Price, net, each....**$1.35**

No. 2. All metal reel with strong tubular frame. Cast iron wheels, 7 inches in diameter. Drum made of heavy sheet steel, and holds 100 feet of garden hose. Shipping weight 15 pounds. Price, net, each.....**$1.60**

No. 2, Price, net, $1.60



Fountain Sprinkler

Made of heavy sheet brass, soldered hose connection. Throws spray in square Gets into the corners.
Price, each.....**75c**

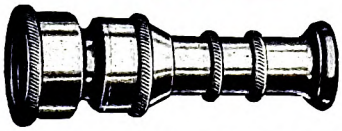
Columbia Sprinkler

The Columbia Sprinkler is one of the most popular types made. Will revolve rapidly even when pressure is low. Requires no adjusting and will last for years.
Price, net, each.....**98c**

Elgin Sprinkler

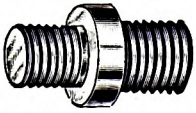
Frame built to form runners. Can be moved without shutting off water. An attachment included with each sprinkler throws the spray on one side when so desired.
Price, net each.....**55c**

Brass Spray Nozzle



Tube is cast brass. Needle valve regulates water from solid stream to fine mist or coarse spray.
Price, net, each.....**28c**

Garden Hose Couplings



½ and ¾ inch. Made of cast not stamped brass.
Price, net, each set.....**10c**
Per dozen.....**$1.20**

Rubber Washers

for all garden hose couplings
Price, net, per doz.....**10c**

Sherman Brass Hose Clamps

¾ and ½ inch
Price, net, each.....**4c**
Price, net, per doz.....**35c**

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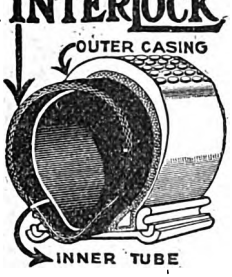
INTERLOCK INNER TIRES

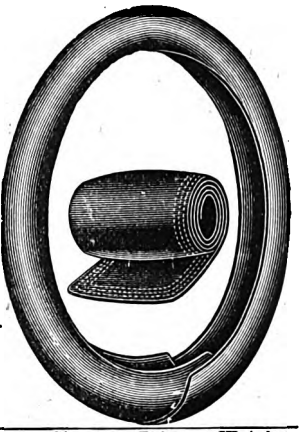


This is the genuine Interlock Inner Tire which has been widely advertised and has made good all over the country in over a quarter million tires. The object of the Interlock is to increase the strength of the tire so as to make it blow-out proof and practically puncture proof. The result of using Interlocks is that new tires will give twice the usual mileage while old or half worn tires will give hundreds and hundreds miles of extra service. The Interlock is a complete extra inside tire, which is easily placed between the regular casing and inner tube. It is made exactly like a tire, full, round, endless and with flaps locked to the rim so that it cannot heat or chafe and does not interfere with either speed or resilience. The construction of the Interlock makes it take the strain completely from the sides and rim of the tire as well as the tread.

Size Tire	Price Each	Weight, pounds	Size Tire	Price Each	Weight, pounds
28x3	$3.60	3	34x4	6.76	6¼
30x3	3.92	3¼	35x4	7.00	6¾
30x3½	4.68	4½	36x4	7.20	6½
32x3½	5.04	4¾	34x4½	8.56	6
34x3½	5.40	5	35x4½	8.84	6½
30x4	5.92	4¾	36x4½	9.08	7
31x4	6.10	5¼	37x4½	9.32	7½
32x4	6.40	5¾	36x5	10.28	7½
33x4	6.56	6	37x5	10.56	8

Other sizes furnished at proportionate prices.

Gripwell Tire Reliners

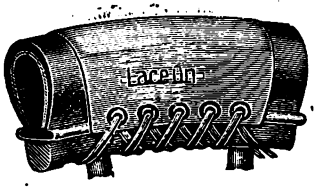


Gripwell Reliners will enable the motorist to get hundreds of extra miles of service out of tires which would ordinarily be thrown away. They will prevent blow-outs and punctures in the majority of cases. Gripwell Reliners are made of special tire fabric, several layers of which are cemented together over a mould. Being made in this way, they fit the inside of the tire snugly and do not creep or chafe when properly applied. Made full width to reach from bead to bead, the 4-inch sizes being 4 plies thick and smaller sizes 3 plies. Cement coated and self-vulcanizing when applied to tire.

Size Tire	Price Each	Weight, pounds	Size Tire	Price Each	Weight, pounds
28x3	$1.55	3	33x4	$2.60	5¼
30x3	1.70	3¼	34x4	2.80	5½
32x3	1.75	3½	35x4	2.95	5½
30x3½	2.00	3½	36x4	3.10	5¾
31x3½	2.10	3¾	34x4½	2.90	6
32x3½	2.20	4	35x4½	3.15	6¼
34x3½	2.25	4¼	36x4½	3.35	6¼
36x3½	2.40	4½	37x4½	3.55	6½
30x4	2.15	4½	34x5	3.40	6½
31x4	2.25	4¾	36x5	3.90	7
32x4	2.40	5	37x5	4.10	8

Other sizes furnished at proportionate prices.

Gripwell Lace-On Boot



Made from several plies of heavy tire fabric and high grade rubber stock. Made over a form and therefore fit casing perfectly. Furnished complete with lacing. Jumbo size is extra heavy, extra strong and 1-3 longer.

Width Tire, inches	Regular Size		Jumbo Size	
	Price Each	Wt., ounces	Price Each	Wt., ounces
3	$0.60	16	$0.80	30
3½	.65	17	.85	32
4	.70	27½	.90	34
4½	.75	18	.95	36
5	.80	18½	1.05	38
5½	.85	20	1.15	40

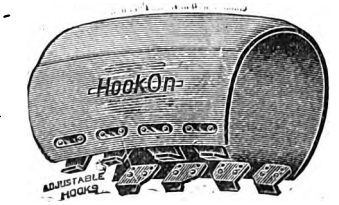
Gripwell Floating Flaps

To be placed between tube and rim with Q. D. Clincher and S. S. Tires to prevent pinching of tube. State size of tire when ordering.

Price Each

3 and 3½-inch..... $1.00
4 and 4½-inch..... 1.10
5 and 5½-inch..... 1.25

Gripwell Hook-On Boot



Made with a hook which is easily adjustable to take care of the difference in size owing to different tread thickness, thus a perfect fit is assured. Has extra outside screw plate and reinforced edges, making it impossible for the hook to pull out. Overcomes every difficulty of all other types of Hook-On Boots. Packed singly in cartons, including inside patch. Jumbo size is extra heavy, extra strong and 1-3 longer.

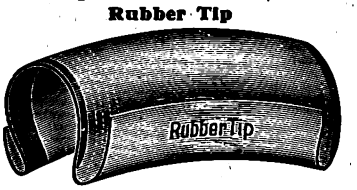
Width Tire, inches	Regular Size		Jumbo Size	
	Price Each	Wt., ounces	Price Each	Wt., ounces
3	$0.55	16	$0.80	20
3½	.60	20	.85	24
4	.65	20	.90	28
4½	.70	24	.95	32
5	.75	28	1.00	36
5½	.80	32	1.10	40

Gripwell Tire Tape

A strictly high grade black adhesive tape will not dry up rapidly, is strong and very adhesive. Furnished in ½-pound rolls, in cartons. Price per roll..... $0.20

Gripwell Inner Shoes

Rubber Tip



Constructed of several plies of special fabric, to be used between inner tube and outside casing. Rubber tipped ends prevent cutting of inner tube, a common fault of inner shoes. Formed to fit perfectly with flaps to lock over both beads. Jumbo size is extra heavy, strong and 1-3 longer.

Width Tire, inches	Regular Size		Jumbo Size	
	Price Each	Wt., ounces	Price Each	Wt., ounces
3	$0.14	30	$0.50	18
3½	.14	35	.55	18
4	.15	40	.60	19
4½	.15	47	.65	19
5	.16	55	.70	22

Standard Blow-Out Patch

This is the standard blow-out patch, made of several layers of fabric and good rubber stocks, but does not have the Gripwell Rubber Tip feature. A heavy, strong, vulcanized patch 6½x 8 inches, made to place over small cracks and breaks in tires.

Price each..... $0.25

When ordering tire boots, etc., to avoid delay, always state whether for clincher, Q. D. or S. S. tires.

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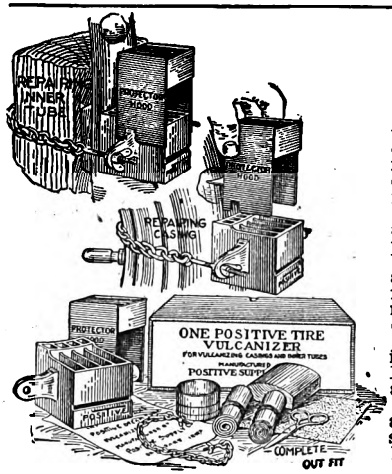


Positive Combination Steam Vulcanizer

Repairs Both Tubes and Casings

The "Positive" is a complete steam vulcanizing plant, put up in a box, so that it may be carried in a tool kit of most any car. It is a high grade vulcanizer and repairs blowouts, stone bruises and glass cuts in any size casing or inner tube as perfectly as a large steam plant. The same scientific method of vulcanizing by steam is used that all tire manufacturers employ and it can not burn or undercure.

The outfit consists of a metal body with a compartment for water and another for fuel. The water compartment is between the tire and flame, where it equalizes the heat generated and vulcanizes a patch that actually becomes a part of the tire. It is absolutely automatic and extinguishes itself after the work is completed. It is safe, clean and so simple that there is nothing to wear out or get out of order. Can be used anywhere, along the roadside or in the garage. The tire need not be removed from the wheel, nor deflated to repair casing.

To operate, place repair rubber in place and clamp on vulcanizer into which is put a measure of water and a measure of gasoline. Light the gasoline. In 20 minutes the fuel will be burned out and the repair is made. Repairs a damage up to 7 inches square.

A complete vulcanizing outfit is furnished with each vulcanizer, including a measuring cup, steel protector hood, special wood block for repairing tubes, scissors and a quantity of tube and casing rubber.

Price complete as described above, weight 4 pounds.....**$2.45**

Positive Steam Tube Vulcanizer

Repairs automobile, cycle car, motorcycle and bicycle tubes. This is the only small steam vulcanizer made expressly for tubes. Will repair a hole up to 12 square inches in any size of tube, in one operation. A water compartment between tube and fuel compartment insures perfect repairs and eliminates all danger of burning, overcuring or undercuring. Outfit is packed in a box with measuring cup, screw, sand paper, scissors and repair gum. Weight 3 pounds.

Price complete.....**$1.05**

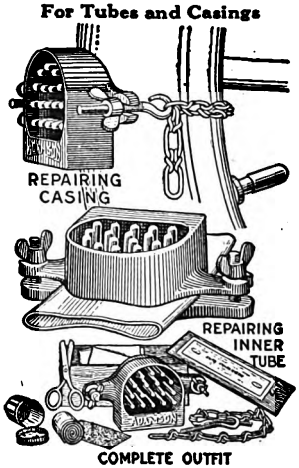
Gripwell Vulcanizing Tools

This kit of 8 especially designed tools is a great assistance in tire repairing. It consists of roller, plug pliers, probe, rubber roughner, cement brush, shearsnips, knife, stitcher and Chase leather containing roll. Each tool has a definite purpose in the preparation of repairs. If purchased separately, these tools would cost more than the complete outfit including case. Weight 3 pounds.

Price of set complete.....**$2.15**

Adamson Universal Vulcanizer

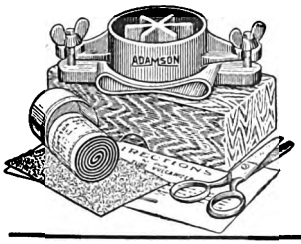
For Tubes and Casings



COMPLETE OUTFIT

A practical vulcanizing outfit complete with repair gum ready for instant use. Tire is repaired without deflating or removing it from wheel. Absolutely automatic. Place the patch, clamp the vulcanizer, put in the gasoline and light it. When fuel is burned out, repair has been made.

Model U, weight 4 lbs., price.**$2.95**



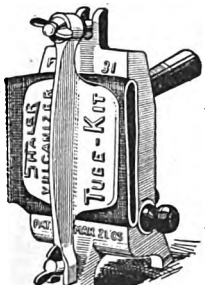
Adamson Model T Vulcanizer

For Inner Tubes Only

No cement or acid is used. The repair gum is placed on the tube according to directions supplied with each outfit. The vulcanizer is applied by simply clamping it centrally over the gum and tube as illustrated. To vulcanize the repair, one ounce of gasoline is placed in the vulcanizer and ignited. The fuel is allowed to burn itself out and the repair is completed. Furnished with complete outfit as illustrated.

Model T. Weight 4 pounds, price.....**$1.95**

Shaler Tube-Kit Vulcanizer

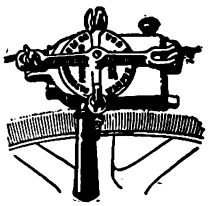


For Inner Tubes Only

Intended to be carried in the tool box of a car for emergency repairs; mends all tube injuries quickly and permanently. As simple and easy to use as a temporary patch. This model is all that is needed if one does not want to take care of casings. The correct amount of heat is produced by a lamp which burns gasoline or alcohol, without smoke, soot or exposed flame. The fuel is contained in the lamp in such a way that accidental tipping over of the vulcanizer when in use would not cause trouble. A measure graduated to give the proper charge is furnished with the vulcanizer so that no watching or regulating is necessary. Vulcanizes a surface 10 inches square. Complete with repair material. Weight 4 pounds. Price complete..... **$1.55**

Shaler Vul-Kit Vulcanizer

For Tubes and Casings



Besides making every practical kind of tube repairs, the Vul-Kit has a 3½x4-inch surface curved to fit any sized tire for mending casing injuries. This is very valuable because while tubes are only mended when the tire goes flat, casings always need attention. Small cuts, neglected, quickly become blowouts. It is easy to mend a small cut while tire is on the wheel. Simply fill the cut with rubber, clamp on the vulcanizer and in a few minutes you have a permanent repair. Casings cost several times the cost of tubes. When a casing blows out it ruins the tube also. This vulcanizer produces no exposed blaze, it can be used close under a fender without scorching the paint. The Vul-Kit is nickeled and polished, packed with repair material in a strong box for carrying in tool box of car. Weight about 5 pounds. Price complete..... **$2.65**

The Chicago Fire and Police Departments use Gripwell Tires exclusively.

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Gums, Patches, Cement and Vulcanizing Supplies

Gripwell Raw Gum Repair Stocks for Tubes and Casings

It is useless to spend time and money making repairs to casings and inner tubes by using inferior raw gum stocks, as they will not be permanent. Our Gripwell Gums will enable the vulcanizer to make the very best repair possible. They are higher in price than some gums on the market, but we only care to compete in quality. They are strictly first quality and will give entire satisfaction.

Gripwell Tread Gum

For repairing tread cuts, putting in new sections of tread or complete retreading. Furnished in ¼ and ½ pound rolls in air tight cartons

Price per Roll

¼-pound.....$0.25 ½-pound.....$0.40

Gripwell Combination Tube Gum

When a tube is so injured as to require a large patch, the repair should be vulcanized. Gripwell Combination Gum is so called because one side is semi-cured and the other cured. The semi-cured side forms the inner surface of the patch. No sticking to the other side of tube. The advantage of this is apparent to the repair man, at once. Furnished in ¼ and ½-pound rolls packed in air tight cartons.

Price per Roll

¼-pound.....$0.29 ½-pound.....$0.48

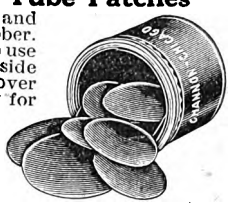
Gripwell Tube Gum

This gum is used mostly in connection with the Combination Gum described above. It is uncured. When the inside patch has been made with the semi-cured gum, the cavity or outside depression is filled with this gum and the complete patch then vulcanized. A tube so repaired is stronger at this point than the undamaged part of the tire. Furnished in ¼ and ½-pound rolls packed in air tight cartons.

Price per Roll

¼-pound.....$0.29 ½-pound.....$0.48

Gripwell Cementless Tube Patches



These patches are red in color and made of high quality para rubber. They may be attached without the use of cement. Simply moisten one side with a little gasoline, press firmly over place to be repaired, allow to dry for a few minutes and tube is ready for use. There are 12 patches in a box in varying sizes from which the suitable size for the injury is selected. Made with feather edges, lined with coating of self-vulcanizing rubber protected with muslin to prevent rubber from drying out. Weight 5 ounces.

Price per can of 12 patches.....$0.30

Die Cut Cementless Tube Patches

These patches, while not requiring cement to attach, are die cut, and do not have beveled edges or muslin tab for easy removal of protecting sheet. The rubber adhesive surface, however is strictly first quality. Weight 4 ounces.

Price per box.....$0.15

Oval Valve Bases

These valve bases, when cemented down properly, will prevent valve leakage. Small size is intended for 3 and 3½-inch tires. Larger size is for 4, 4½, 5 and 5½-inch tires.

Large size, price each.....$0.20

Small size, price each..... .16

Michelin Mastic

Michelin Mastic has been on the market for a long time and is well and favorably known. For filling and cementing cuts, it is without equal. Can also be used successfully in repairing punctures in inner tubes. It is not a liquid but a plastic cement. Cuts or dig-outs in casings, when properly repaired with Michelin Mastic will not reopen with wear but are permanently sealed.

Price per 2-ounce can.....$0.27

Michelin Pure Gum Cement

Michelin Pure Gum Cement is so well known that a lengthy description is unnecessary. Put up in convenient 2-ounce squeeze tubes.

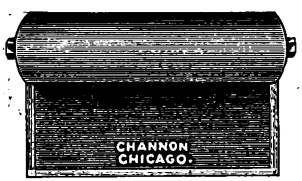
Price per tube.....$0.10

Gripwell Pure Gum Vulcanizing Cement

Made of raw para rubber and contains absolutely no rosin. Cures quickly and secures perfect results with any vulcanizing method. The best patch or repair stock and the most expert repair man are helpless, if cheap commercial or home-made cement, both made by guess work, are used. Gripwell Cement will give entire satisfaction if properly used. Furnished in ¼ and ½-pint cans.

Price per Can

¼-pint.....$0.16 ½-pint.....$0.30



Gripwell Rebuilding Fabric

Light in weight, but is stronger than any requirement of service will demand. Frictioned with extra high quality rubber compound. Packed in one-pound air-tight cans.

No. 8498. Frictioned on two sides, skim coat on one side. Price per 1-pound can.....$1.25

No. 8498BB. Frictioned on one side. Price per 1-pound can..... 1.30

No. 8482BB. Frictioned on one side. Price per 1-pound can..... 1.20

Gripwell Breaker Fabric

This strong fabric is of open weave, filled with gum of great adhesive quality. Its use is a strong insurance against tread separation, forming a weld between tread and lower layers that make the sections a perfect unit of strength. This breaker fabric also acts as a shock absorber and distributor, protecting carcass from concentrated strains.

No. 2098. Frictioned on two sides. Price per 1-pound can.....$1.10

Michelin Universal Repair Kit

A complete repair kit comprising every requisite for making quick and permanent repairs to casings and inner tubes. Highest quality throughout. Every motorist would do well to carry this kit in his tool box.

Contents: 1 casing patch, 1 2-ounce can of Michelin Mastic, 1 can Michelin Cement, 1 tube talc powder, 1 package assorted tube patches and instructions giving complete repair instructions. Weight 2 pounds.

Price each.....$0.95

Gripwell Tires are reasonable in price and are guaranteed 3500 miles.

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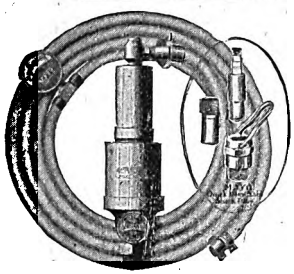
Automobile Tire Pumps

MAYO SPARK PLUG PUMP



A thoroughly reliable pumping plant which can be instantly attached to all four-cycle motors of two, four, six, or eight cylinders and will inflate the tire with fresh, pure air in from two to four minutes, depending upon size of tire and pressure. Guaranteed pressure obtainable of 100 pounds and over. Can be attached to any car in an instant and the cost of the pump is the last cost; there are no further supplies to be bought. It is small, compact and light, weighs but 2½ pounds and can be carried anywhere. Noiseless in operation, non-adjustable, requires no attention whatever. Outfit consists of pump with adapter to fit any car, 12 feet of hose with connections and guaranteed accurate pressure gauge installed in the hose, everything ready for use.

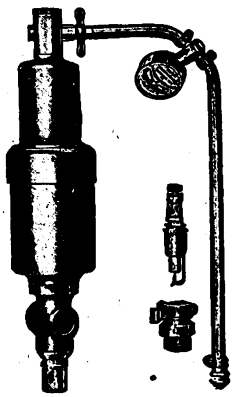
Price complete.....**$8.00**

Mayo Quick Detachable Spark Plug

This spark plug greatly adds to the convenience of using the pump outfit. Can be installed in any motor the same as an ordinary spark plug. A quarter turn of the lock handle permits the core of the special spark plug to be slipped out. The pump slips in and is locked ready for use in the same manner. Both operations require but two seconds. Furnished in ⅛-18 and ½-inch sizes (no metric), complete with connection for pump.

Price each complete.....**$0.98**

Brown Impulse Tire Spark Plug Pump



This pump works on the compound principle, inflating the tire with absolutely pure, cool air. The action which prevents the taking in of gases is due to the breaking up of the vacuum of the motor by the special breather valve. This has a tension of 3 ounces, the ordinary motor having about 5 feet of vacuum. The atmospheric pressure of 15 pounds per square inch immediately overcomes the vacuum and the pure air rushing into the cylinder takes the place of the gasoline vapor. It requires but half a minute to attach the Brown Air Pump to the engine. Suitable for any four-cycle engine. Furnished complete with pump, gauge, hose and connections.

Price each.....**$10.55**

Brown Q. D. Spark Plug

This spark plug is made especially for use with the Brown Tire Spark Plug Pump. Can be instantly removed and inserted. Makes a fine priming spark plug. When ordering state size wanted.

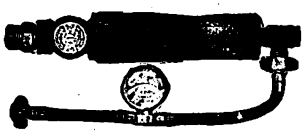
Price each.....**$1.00**

Brown Jr. Impulse Tire Pump

This pump operates exactly on the same principle as the Brown Pump described above, in fact is identical in every respect, except in size and length of hose; and does not have an air gauge. Specially adapted for use on small cars, such as the Ford, Saxon, Metz, etc.

Price complete.....**$4.95**

MAYO FORD PUMP



A diminutive Mayo Spark Plug Pump built especially for the Ford car. A real power tire pump which inflates tires with pure, fresh air; 32x3 size to 65 pounds pressure in 2 minutes; 32x3½ size to 70 pounds in 3 minutes. Attached and used exactly like the standard Mayo Spark plug Pump. No wearing parts to break or get out of order. Fitted with ½-inch connection, 10 feet of good hose, accurate gauge and connections.

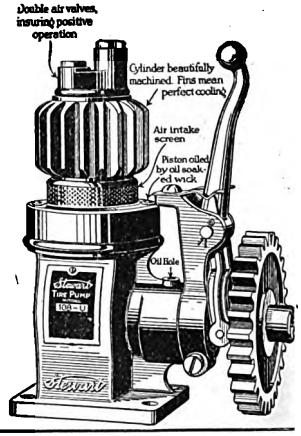
Price complete.....**$6.00**

Stewart One Cylinder Air Pump

Furnished Complete with Gears and Brackets for Any Make of Car

This pump is mounted right on the motor and operated by moving one lever. It is light in weight, the base being made of aluminum. The bore is 1⅞ inches; stroke 2½ inches; length of piston 1¾ inches, making an extra long bearing. Crank shaft is hardened and runs in hardened steel, not bronze bearings. It is fitted with oil conductors but requires no surplus oil in the crank case. The piston is lubricated by means of a wick or wipe system, the oil being applied from the outside of the pump. The bottom of the crank case is open so that in case there should be the least amount of free oil it will immediately drop out. None will be carried up with the air into the tires. The cylinder is not a casting, but a machined job and is constructed with fins to insure plenty of cooling surface. The air is protected with a double ball valve, so that in the event that dirt should hold one of the valves open the other valve would be sure to act and in this way cause no loss of air. With the pump is furnished a gear shift, all necessary gearing and brackets for attaching to any make of car, 13 feet of hose, a tire gauge and connections. Dimensions: Length 6 inches; height 9¼ inches; width 4 inches. Weight 5¼ pounds. When ordering state the make, model and year of manufacture of car for which pump is desired, so that the proper gearing may be furnished.

Price complete as described above.....**$15.00**



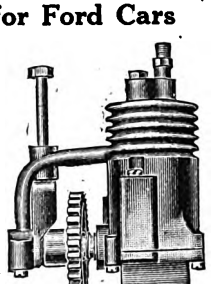
Skinner Compound Lever Pump

In this pump are combined enormous volume, easy operation and durable construction. Adapted for use in either private or public garage. An enormous volume of air is produced with practically no effort on the part of the operator and a large size tire can be inflated easily and quickly to any pressure desired. Barrels are made of heavy gauge brass tubing, highly polished, cast parts neatly black enameled, floor board and handle mahogany stained. Furnished complete with six feet of heavy five-ply rubber tubing equipped with standard connections. If pressure gauge is wanted, add to price of pump given below, $0.65.

Price each.....**$8.85**

SanFORD Tire Pump for Ford Cars

When installed becomes a permanent fixture of the car and is always ready for use. All that is required is to attach hose between pump and tire and start the engine. In two minutes the tire is inflated. The pump complete with driving gear can be attached by an Ford owner in a half hour. No drilling or machine work is required. Pump is attached to engine near fan belt pulley. Driving gear, consisting of a split gear is coupled to crankshaft by means of a long pinion bolt. Gears thrown in mesh by simply moving a lever.



Price complete with gears, hose and gauge.....**$8.25**

All prices in this catalog are net and are not subject to further discount.

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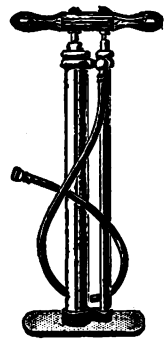
Tire Pumps and Miscellaneous Tire Accessories

Single Cylinder Tire Pump

This is one of the most powerful single cylinder pumps manufactured. It will force air against a higher pressure than most pumps of its type. This power is secured by the use of an injector cylinder of special design, equipped with two plungers. An ideal pump for 3-inch tires. Length over all, 25 inches. Connection, 20-inch 3-ply hose and auto nipple. Weight 4½ lbs.

Price each.....**$1.20**



Two Cylinder Tire Pump

A special pump of stocky design that will pump air almost twice as fast as a one-cylinder pump with the same effort. Workmanship, material and design are of the highest quality. Length over all 20 inches. Connection 24-inch 5-ply rubber tubing and auto nipple. Weight 6 pounds.

Price each...**$1.70**

Three Cylinder Tire Pump

This pump will inflate tires in 30 seconds. Works easily against full tire pressure. The air flows into the tire in a constant stream with infinitely less effort than almost any other pump on the market. Length over all 22 inches. Connection—30-inch 5-ply rubber hose and a special quick operating auto nipple. Weight 8 pounds.

Price each.....**$3.25**

Twitchell Tire Gauge

Also known as the pencil gauge, as it is very small in thickness. It can be used when the wheel is in any position. It is provided with a new positive lock stop and stays up so that the pressure may be read after gauge has been taken off the valve. The Twitchell Gauge will indicate the true pressure or none. Sent postpaid anywhere.

Price each.....**$1.00**

Pump Tubing

First quality rubber and fabric construction pump tubing, furnished in the sizes priced below.

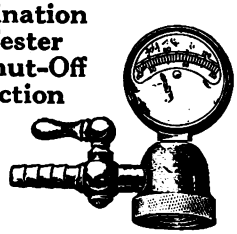
Price per ft., ⅜-in. **$0.06**
Price per ft. ¼-in.. **.08**

Hose Bands

To fit small pump hose. Made of all brass.

Price per doz., ⅜ in **$0.30**
Price per doz., ⅞ in. **.33**
Price per doz., ½ in. **.35**

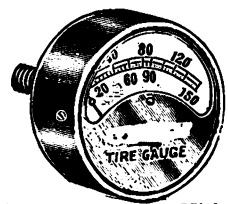
Combination Tire Tester and Shut-Off Connection



This gauge is designed for use in connection with a storage tank. Attach to end of air hose. To obtain correct reading close shut-off cock thereby shutting off air supply. Gauge will then show pressure in tire.

Price each.....**$1.45**

Pump Gauge

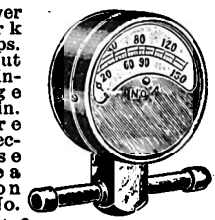


Attaches to pump usually at the bottom for permanent use. Dial is 1½ inch diameter; registers to 150 lbs. Back or bottom connection furnished; ⅛-in. I. P. Thread. Nickel plated. Weight 6 ounces.

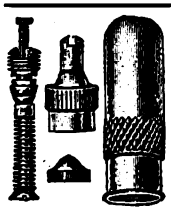
Price each.....**$0.80**

Power Pump Gauge

For power and spark plug pumps. To attach, cut hose and insert gauge about 18 in. from tire valve connection. Hose should have a connection like our No. 46. Weight 6 ounces.



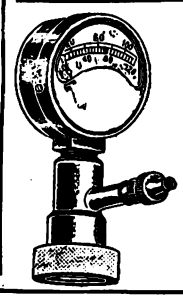
Price each.....**$0.85**



Schraeder Valve Parts

Too well known to require description.

Price Each	
Complete.....	**$0.39**
Cap.....	**.04**
Cap washer...	**.01**
Inside, complete	**.04**
Dust cap.....	**.09**

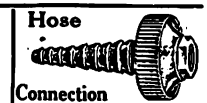


Combination Tire Tester and Pump Gauge

To use as a tire tester, simply press gauge down over tire valve and pressure will be indicated. To use as a tire gauge simply unscrew the little cap off the extending arm and attach hose connection. This is a very accurate and sensitive gauge, well made throughout. Highly nickel plated finish. Dial 1½ inches in diameter. Weight 8 ounces.

Price each.....**$1.20**

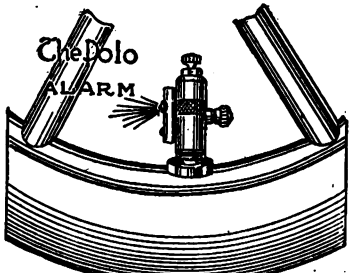
Hose Connection



A heavy substantial screw connection with fibre washer which cannot be lost or blown out, but can be replaced when worn out. For ¼-inch air pump tubing

Price each..**$0.15**

Improved Polo Tire Alarm



This little device tells the driver of a running car instantly when the pressure in any tire falls to the minimum safety point. It is an automatic presure gauge that is attached to the valve stem when a new tube is installed and need never be removed until tube is changed. Tire can be inflated or "gauged" without removing the alarm. The Polo Alarms are adjusted to the following standard pressures: 30 pounds minimum "Ford Special," 40 pounds minimum "Standard," 70 pounds minimum "Heavy Cars."

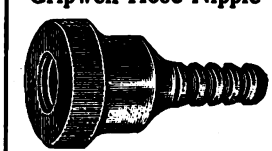
Price each.....**$1.90**
Per set of four.....**$7.50**

Automatic Air Chuck

To operate attach air chuck to hose line and apply to tire valve. Plunger will open and allow air to flow freely. When removed from valve, air chuck automatically closes, preventing further escapage of air. Shank is tapered to take hose from ¼ to ⅜ inch. Fills a long felt want.

Price each.....**$0.85**

Gripwell Hose Nipple



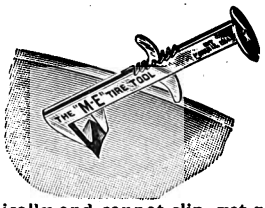
A perfect slip-on connection that stays on. When applied to tire valve, a quarter turn locks it on valve and it will not pull off until intentionally released. Made extra heavy of all brass.

Price each.....**$0.25**

All prices in this catalog are net and are not subject to further discount

Miscellaneous Tire Accessories

"M. E." Tire Repair Tool for Surface Cuts



Used with any good cement or tire repair compound, this tool makes it easy for anyone to thoroughly clean and "dress" a cut for cementing. The tension of the opened cut or tear is the automatic tension of the tool and is so light in weight it does not require holding in place as do all other competitive devices on the market. Locks automatically and cannot slip, yet releases instantly when desired. Made of pressed steel, heavily nickel plated, indestructible. Net weight 2 ounces.

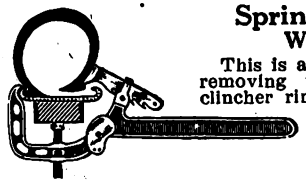
Price each.....$0.25

Johnson Tire Tool

A strong, simple, durable, powerful and practical tire tool. Rapid and efficient. Made of drop forged steel with one end designed as a hammer, the other as a grab hook or tire remover. Applies force at bead of tire, the logical place and throws tire free from rim. Furnished complete with full directions.

No. 1. Length 13 inches, weight 2½ lbs., price....$0.57
No. 2. Length 17 inches, weight 3 lbs., price..... .75

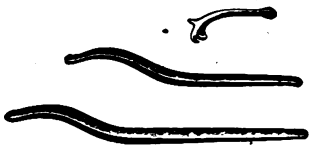
Springfield Tire Tool With Rim Hook



This is a very convenient tool for removing tires from the common clincher rim, detachable rim or demountable rim. Fits any 3 to 5-inch tire. Tire may be removed from a demountable rim while either on or off the wheel. Will not gouge into the rubber or tear the fabric off the tire. Shipping weight 2 pounds.

Price each.....$0.95

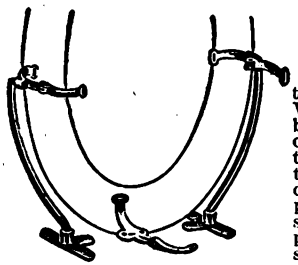
Michelin Tire Fitting Kit



For soft bead clincher tires. Saves time and labor. Packed in a durable canvas bag with complete instruction book. Weight 2 pounds.

Price of kit.....$0.70

Adjustable Tire Holders



This is one of the best tire holders on the market. Will fit on the running board of practically any car. The straps can be tightened snugly around tires, preventing them from chafing. Furnished complete with harness leather straps. Very neat in appearance, practical and substantial.

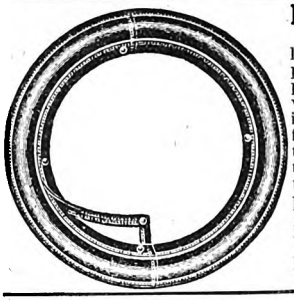
No.	To carry one tire.	Per Set
981.	Mall. blk. enamel, for tires up to 4 in.....	$1.10
980.	Polished brass, for tires up to 4 in.....	2.15
986.	Mall. blk. enamel, for tires up to 5½ in.....	1.50
985.	Polished brass, for tires up to 5½ in.....	2.60
	To carry 1 or 2 tires.	
983.	Mall. blk. enamel, for tires up to 4 in.....	1.25
982.	Polished brass, for tires up to 4 in.....	2.50
987.	Mall. blk. enamel, for tires up to 5½ in.....	1.80
984.	Polished brass, for tires up to 5½ in.....	3.15

Moisture Proof Tire Covers

This cover is easily and securely applied by simply adjusting the cover snugly about the tire, the lock locks itself, making the cover water and dust proof when placed in any position. Fits practically any make of tire by simply adjusting the buttons. A steel spring used in the construction of this cover adds to its perfect fit. Furnished for all tire sizes. Shipping weight 3 pounds. Made of black enameled duck, first quality. When ordering state size and type of tire.

Price each.....$1.35
Extra for demountable or bolt-on type..... .15

Helmer Tire Covers



These covers are made of long grain drill, and are practically water and dust proof. Amply supplied with fasteners around the inside and outside circumference to make it snug fitting. Easily adjusted to tire. State size and type of tire. Weight about 2 pounds.

Price each.....$1.05
For demountable rims, add..... .10
For tires larger than 36 inches, add..... .10

Inner Tube Bags

These bags are made of heavy duck, enameled black, and should not be confused with the light weight tube bags made of drill. Inner tubes should be kept in bags when not in use to prevent them from being chafed or cut by rubbing against sharp edged tools.

For one tube, price each.....$0.30
For two tubes, price each..... .40

Gripwell Tire Talc and Tire Mica

Gripwell Tire Talc is the highest grade American talc procurable for tire lubrication. When sprinkled inside the casing, after making a repair, it prevents tube from sticking and eliminates all friction.

Price per can.....$0.10

Gripwell Tire Mica will not cake, harden or absorb moisture. Used to lubricate inner tubes and is undoubtedly the best powder that can be used for this purpose. Furnished in convenient sifter top cans with cap.

Price per can.....$0.13

Tire-Ite Tire Preservative

Tire-Ite is a pure white rubber tire preservative, containing no oils, turpentine, benzine or any petroleum product which is highly injurious to rubber. It is easily applied with a brush, dries quickly and will not peel, blister or rub off. Adds to the appearance, preserves and protects tires.

Price per Can

1 pint.....$0.50 2 quarts.....$1.80
1 quart..... .95 1 gallon..... 3.50

A mighty handy demountable rim tool will be found described in our wrench section.

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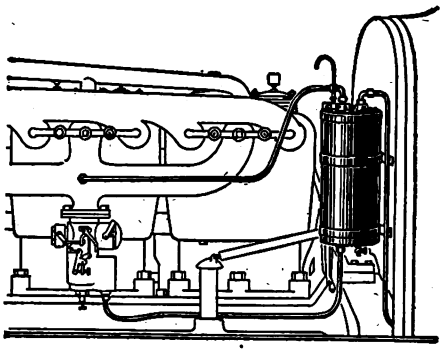
H.Channon Company Chicago

Automobile Specialties

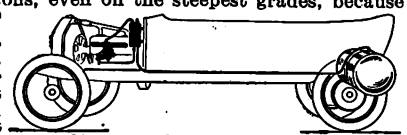
Stewart Vacuum Gasoline System



car, whether new or old, by any garage man. make, model and year of car.
Price complete.....$10.00

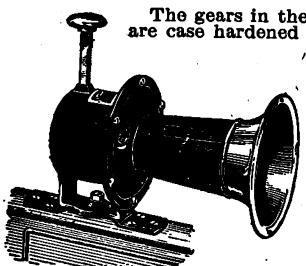
What It Is and Does

The Stewart Vacuum Gasoline System consists of a small tank, 4½ inches by 9 inches high; installed under the hood on the dash or motor and connected to the manifold, carburetor and gasoline reservoir supply. The suction of the motor through the manifold draws the gasoline from the rear reservoir to the small tank under the hood, from which the gasoline falls in a positive, even flow to the carburetor. No preliminary hand-pumping air into gasoline tank before starting car. No depending upon a motor-driven air pump to keep up the pressure after starting. No air gauge to watch; no air lines to keep tight; no air tight connections necessary anywhere. Supplies gasoline to the carburetor unfailingly, under all conditions, even on the steepest grades, because of its being located so close to and above carburetor. Actually saves 10 to 15 per cent gasoline. Requires absolutely no attention after being installed. The Stewart Vacuum Gasoline System can be installed on your present When ordering always state



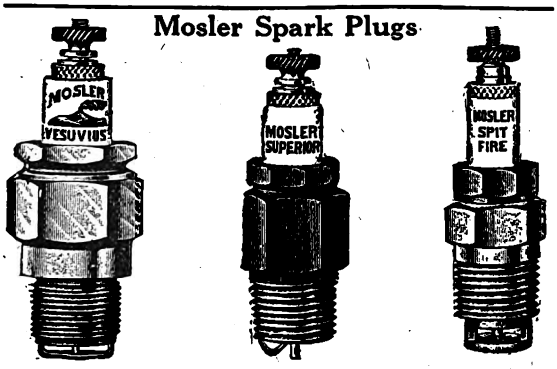
Showing the System Installed

Stewart Warning Signal



The gears in the Stewart Warning Signal are case hardened and each one is supplied with a steel bushing on which the bearings are carried, insuring great durability and ease of operation. The slightest pressure on plunger produces a blasting signal. A double supporting bracket is furnished instead of the usual single bracket. The bracket is swiveled so that horn is always pointing straight ahead. Finished in either black or nickel or black and brass for Ford cars.
Price each.....$5.00

Mosler Spark Plugs



Vesuvius Superior Spitfire

Mosler Vesuvius

A heavy service plug, especially well adapted for use with high tension magnetos. Porcelain made of stone composition and practically indestructible. Two flattened wires curved around end of center electrode gives numerous firing points. Furnished in ½-inch standard, A. L. A. M. or Metric.
Price each.....$0.95

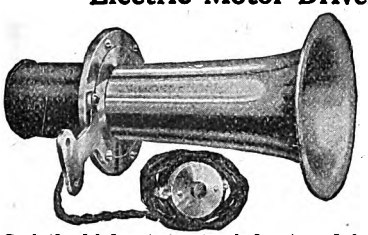
Mosler Superior

An efficient, inexpensive, open end porcelain spark plug. Suitable for Ford, Overland, Studebaker and other cars using ½-inch standard plugs. Also furnished in Metric and A. L. A. M. Standard.
Price each.....$0.35

Mosler Spitfire

A famous high grade spark plug with platinum contact point, designed against wear and pitting. Closed end with base which acts as a condenser and aids platinum point to produce a fat spark. Furnished in ½-inch A. L. A. M. and Metric Standards.
Price each.....$0.95

Electric Motor Driven Horn

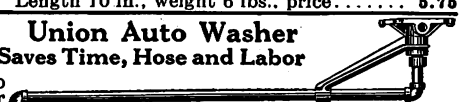


Operate from any 6-volt storage battery or from dry cells. Five cells may be used with the No. 123, one set frequently lasting an entire season. Give a loud clear and penetrating warning, without being harsh and offensive. Strictly high grade throughout and fully equal to widely advertised signals selling at twice the price we ask. Finished in black enamel, three coats baked on or with polished bell. Furnished complete with cord and push button ready to attach to car.

No. 111. Length 12¾ in., weight 10 lbs., price.....$8.25
No. 123. Length 10 in., weight 6 lbs., price..... 5.75

Union Auto Washer

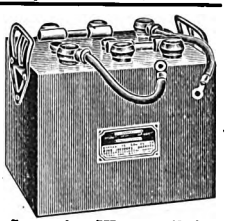
Saves Time, Hose and Labor



An auto washer has ceased to be considered a luxury. It is a positive necessity in both private and public garage. It is easily installed and, as it hangs permanently from the ceiling, is always out of the way, yet ready for instant use. The construction is very simple and there is nothing to get out of order. All parts subject to corrosion are made of brass and all other iron parts are heavily sherardized, making them absolutely rust proof. The washer swings in a circle 8 feet 8 inches in diameter, which is ample for the largest car.

Price of washer only.....$5.00
Good rubber hose, with couplings attached, per foot. .14
Hose nozzle, giving fine spray or heavy stream..... .28

Storage Batteries



This battery is as good on the inside as it looks on the outside. All cell connectors are brought out on top, which prevents breakage. The first connectors are 8 inches from battery. This prevents corrosion and insures a clean contact and a hot spark. Hard rubber jars used throughout. A thoroughly reliable high class battery at a reasonable price.

Capacity	Height, inches	Width, inches	Length, inches	Wt., Lbs.	Price Each
*6 volt, 40 amp....	7¾	4½	7¾	17	$ 7.25
*6 volt, 60 amp....	7¾	5¼	10¼	26	8.40
6 volt, 50-70 amp.	9¼	7	7¾	34	10.95
6 volt, 80 amp....	9	7	7¾	39	11.20
6 volt, 100 amp...	9	7¾	9	46	12.85
6 volt, 80-120 amp	9¼	7½	10¾	60	14.45
6 volt, 120 amp...	9	7¾	9½	52	14.45
6 volt, 150 amp...	9	8	13	69	17.50

*These batteries are for ignition only.

Mr. Automobile Owner: Gripwell Tires are reasonable in price and are guaranteed 3,500 miles.

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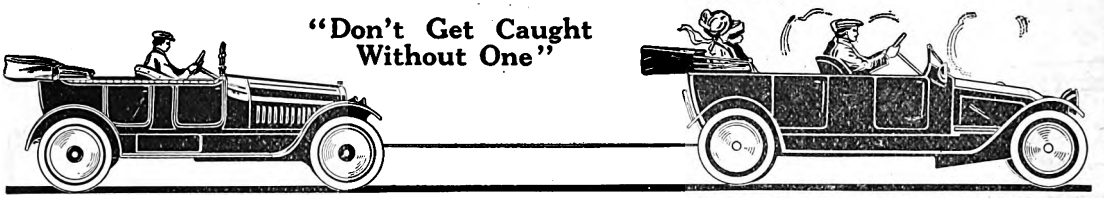
H. Channon Company Chicago

Channon Auto Tow Lines

"Don't Get Caught Without One"



One of the most important parts of a touring kit is a tow rope of some kind—without it you can neither tow nor be towed.

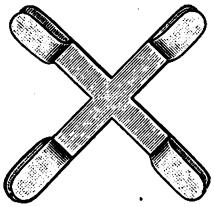
When touring, trouble should be anticipated—one can never tell when some unsuspected flaw may appear, particularly on new cars and it is extremely unpleasant to be caught miles from nowhere on a road where few cars pass.

One can usually borrow or buy enough gasoline to get to the next town, but for a breakdown a tow rope is necessary. The investment is but a trifle and our **Steel Tow Line** with the new reel and holder occupies but little space in the tool box.

Method of Attachment. Pass one Manila sling around axle of one car and catch one of the rope hooks thru the loops. Attach sling and other rope end to the other car and you are ready to tow or be towed.

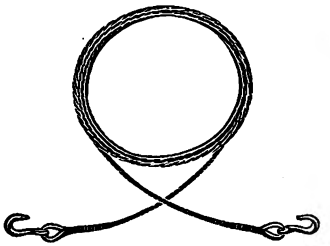
The tow line can also be used to pull a car out of a hole or ditch by the car's own power. Loop one of the Manila slings around the rim of a rear wheel; attach the rope with a hook and turn the rope once around the hub of the wheel. Fasten the free end of the rope to the nearest tree, pole or strong fence post, start the car and since the tree or similar anchor will not give, the wheel turns and winding the rope up on its hub pulls the car out of its position.

The Reel or Holder



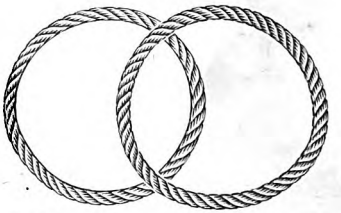
Don't underestimate the value of the holder—a wire tow line is stronger and less bulky than one made of Manila hemp rope—but it has a habit of twisting like a snake and getting tangled up with everything in the tool box. This holder does away with snarling, also kinking of the rope, which is harmful.

The Wire Rope



Twenty-five feet of ⅝-inch flexible steel wire cable with hook carefully spliced into each end. We guarantee these splices to never pull out. If they do we will furnish you with a new rope.

The Rope Slings



These are two endless loops made of good strong Manila rope, spliced very carefully—our splices will never pull out. These slings are looped over the axles of both cars, will not damage the paint and give a certain degree of flexibility which helps to take off part of the shock when starting.

No. 3 Channon Steel Auto Tow Rope

French style with metal reel and two Manila rope slings complete. Weight 6 pounds.

Price each.....**$3.50**

No. 4 Channon Steel Truck Tow Rope

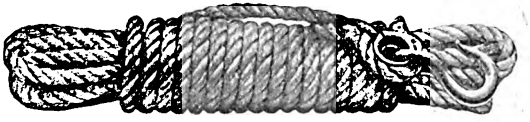
Made like the No. 3, but without the holder. Cable is ½ inch in diameter, 30 feet long and extra flexible.

Price each.....$4.00

Wire Tow Line Complete—One Compact Unit
A small flat package fitting into any tool box. The rope never gets snarled up or kinked. It's always ready for instant use.

Channon Manila Auto Tow Rope

Some prefer a tow line made of Manila hemp rope, which can be used to wrap around the wheels and used like skid chain in pulling out of the mud. Made of a superior grade of Manila rope with galvanized hooks secured by strong splices.



No. 1 1-2 inch by 30 foot. Suitable for light cars.....**Price $0.95**

No. 2 3-4 inch by 40 foot. For heavy touring cars.....**Price $2.00**

They grip the road. Gripwell Tires are right in quality, price and guarantee.

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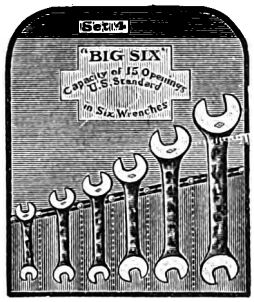


Drop Forged Wrench Sets

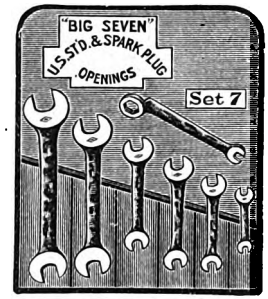
"Extra Capacity" Set, "Big Six," No. 4

With Openings Milled for Most Popular U. S. Standard Nuts and Cap Screws.

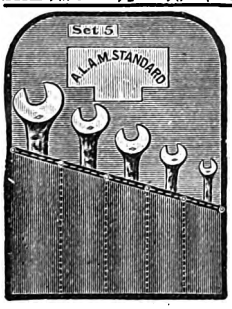
For Nuts Diam. Bolts		For Cap Screws Diam. Screw		Openings Milled U. S. Standard	Extreme Length	Thickness Heads	PRICE		
Small Head	Large Head	Small Head	Large Head				Unfinished	Semi-finished	Finished
	¼	¼	5/16	7/16 & 1/2	4 7/8	3/32			
	3/8	3/8		9/16 & 11/16	5 7/8	5/16			
5/16	7/16			11/16 & 13/16	6 7/8	11/32	$0.98	$1.37	$1.95
		7/16	1/2	5/8 & 3/4	6 7/8	11/32			
1/2	5/8	5/8		7/8 & 1 1/16	7 3/4	1/2			
	3/4	3/4	· 1	1 & 1 1/4	11 1/2	9/16			

Automobile "Extra Capacity" Set, "Big Seven," No. 7

With Openings for U. S. Standard Nuts, Cap Screws and Spark Plug, etc.



Nuts		Cap Screws		Openings Milled	Extreme Length	Thickness Heads	PRICE		
Small Head	Large Head	Small Head	Large Head				Unfinished	Semi-finished	Finished
	¼	¼	5/16	7/16 & 1/2	4 7/8	3/32			
	3/8	3/8		9/16 & 11/16	5 7/8	5/16			
5/16	7/16			11/16 & 13/16	6 7/8	11/32	$1.14	$1.59	$2.30
		7/16	1/2	5/8 & 3/4	6 7/8	11/32			
1/2	5/8	5/8		7/8 & 1 1/16	7 3/4	1/2			
	3/4	3/4	1	1 & 1 1/4	11 1/2	9/16			
SAE 5/16	U.S. 1/2	3/8	S.P. 1/2	7/16 & 7/8	8	5/16 & 1/2			

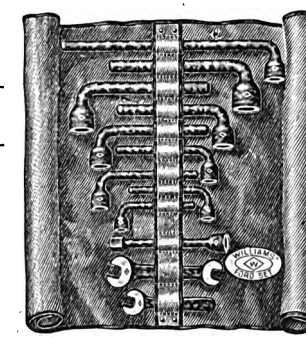


Automobile Set, No. 5S

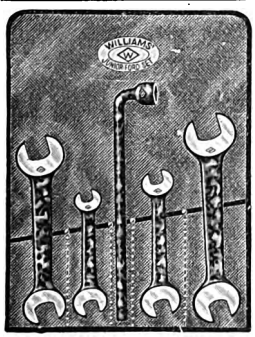
With Openings Milled for S. A. E. Standard Nuts and Cap Screws.

For S. A. E. Standard Nuts and Cap Screws Diameter Bolts and Screws	Openings Milled	Extreme Length	Thickness Heads	PRICE		
				Unfinished	Semi-finished	Finished
¼ & 5/16	7/16 & 1/2	4	3/32			
3/8 & 7/16	9/16 & 5/8	5 7/8	5/16			
1/2 & 9/16	3/4 & 7/8	7 3/4	11/32	$0.86	$1.19	$1.69
5/8 & 11/16	15/16 & 1	8 3/4	1/2			
3/4 & 7/8	1 1/16 & 1 3/4	11 1/2	9/16			

Ford Wrench Sets — Set A.



CLASS	Opening Size	Extreme Length	PRICE PER SET		
			Unfinished	Semi-finished	Finished
D. H. Engineers	11/32 & 7/16	5 7/8			
S. H. Cap Screw	9/16	4 3/4			
Offset Socket	11/32	4 3/4			
Offset Socket	11/32	5 1/8			
Straight Socket	11/32	5 7/8			
Offset Socket	11/32	5 7/8	$1.85	$2.65	$3.32
Offset Socket	11/32	5 7/8			
Offset Socket	11/32	11			
Offset Socket	11/32	6 3/4			
Offset Socket	11/32	6 3/4			
Offset Socket	11/32	7 1/2			
Offset Socket	11/32	8 3/8			



Set A. These Ford Sets are made of superior drop-forged steel of selected quality and will stand the most severe usage. Each tool is adapted to a Ford purpose, assuring the utmost in service.

Set B. This set comprises five of the most important wrenches used on a Ford, having nine different size openings from 5/16 to 1 1/8 inches. The material is the same as that of Set A.

Set B.

CLASS	Opening Size	Extreme Length	PRICE PER SET		
			Unfinished	Semi-finished	Finished
D. H. Engineers	5/16 & 11/16	5 7/8			
D. H. Cap Screw	5/8 & 3/4	6 7/8			
D. H. Engineers	15/16 & 1	8 3/4	$0.98	$1.34	$1.90
D. H. Cap Screw	7/8 & 1 1/8	9 3/4			
S. H. Socket	11/32	11			

We have a paint for every purpose. See paint section.

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Genuine Eveready Flashlights

Electric flashlights are not only great conveniences, but practical necessities for everyone. They are absolutely safe and can be carried into a cellar where gas is leaking without fear of an explosion. Especially valuable to automobilists. Can be carried in tool box without danger of short circuiting. Give a flash or continuous light as desired. All genuine Eveready Flashlights are fitted with Mazda Tungsten Lamps and Tungsten Batteries, which are so far superior to the old style carbon lamps and batteries that there is practically no comparison, yet cost no more.

Tubular Flashlights

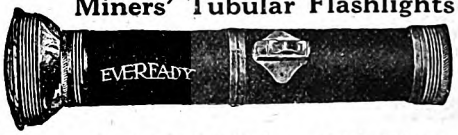
Case, battery and lamp complete. Size 1½x6½ inches.

No. 2604.	Vulcanized fibre case, price each	$1.20
No. 2624.	Black cloth case, price each	.95
No. 2631.	Nickel plated brass case, price each	1.50
No. 790.	Renewal Tungsten battery, price each	.30
No. 1198.	Renewal Mazda lamp, price each	.13

Case, battery and lamp complete. Size 1½x8½ inches.

No. 2606.	Leatherette case, price each	$1.20
No. 2612.	Vulcanized fibre case, price each	1.40
No. 2626.	Black cloth case, price each	1.00
No. 2627.	Enameled metal case, price each	.90
No. 2631.	Nickel plated brass case, price each	1.50
No. 705.	Renewal Tungsten battery, price each	.40
No. 1193.	Renewal Mazda lamp, price each	.13

Miners' Tubular Flashlights



Extra large lenses and reflectors, which increase and spread the light. Use the same batteries and lamps as the flashlights priced above.

Case, battery and lamp complete. Size 1½x6½ inches.

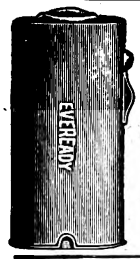
No. 2616.	Vulcanized fibre case, price each	$1.50
No. 2634.	Nickel plated brass case, price each	2.00

These numbers use No. 790 batteries and No. 1198 lamps.

Case, battery and lamp complete. Size 1½x8½ inches.

No. 2619.	Vulcanized fibre case, price each	$1.70
No. 2633.	Nickel plated brass case, price each	2.40

These numbers use No. 705 batteries and No. 1193 lamps.



N. P. Vest Pocket Flashlights

Actually vest pocket in size, yet thoroughly practical. Case is brass, handsomely nickel plated. Push button and sliding contact for flash or continuous light.

No. 6900.	Complete 1 1/16x1¼x2½ in.	$0.75
No. 700.	Renewal Tungsten bt'ry.	.30
No. 1179.	Renewal Mazda lamp	.13
No. 6961.	Complete ¾x1 3/16x2 5/16 in.	.75
No. 750.	Renewal Tungsten bt'ry.	.30
No. 1180.	Renewal Mazda lamp	.13
No. 6962.	Complete ¾x2x2 5/16 in.	1.00
No. 751.	Renewal Tungsten bt'ry.	.40
No. 1181.	Renewal Mazda lamp	.13

Nickel Plated House Lamp

Convenient and safe at all times. Cannot blow out or blow up. If knocked over there is no smelly oil to run or ignite. Can be used without danger in a gas-filled cellar. Fitted with Tungsten battery and Mazda Tungsten lamp. Brass case, nickel plated and highly polished. Slide switch for flash or continuous light. Size case 2¾ in. deep, 2½ in. wide, 3¾ in. high. Weight about 22 ounces.

No. 4706.	House lamp complete	$2.00
No. 703.	Renewal Tungsten bt'ry.	.40
No. 1190.	Renewal Mazda bulb	.13

Bright Eye Electric Lantern

Rolled steel, brass plated case. Brass reflector with burnished silver surface reflecting 40 candle power. Imported double plano lens. Screw switch. Uses standard No. 6 dry battery.

Price Each Complete with battery, $1.00 Without battery, 75c Renewal bulbs, 25c

Lightning Bug Electric Lantern

Spreads a clear light 50 feet. Uses one No. 6 dry cell. Switch can be turned on or off with the same hand which carries the lantern. Attractively finished in black enamel and nickel. Has two handles as shown.

Prices With battery $1.25 Without bt'ry 1.00 Renewal bulbs .25 Renewal bt'ry .25

Dad's Electric Lantern

Every home, factory and office has daily need for one of these electric lanterns. Uses two Standard No. 6 dry batteries. Has 3-inch Bull's Eye Lens in front of a brilliant, non-tarnishing reflector. Throws a powerful, brilliant white light 300 feet. Furnished with the new Mazda tipless bulb. Well made steel case, with cap, enameled bright red. One set of batteries will give 150 hours of intermittent lighting. Provided with handy switch and two convenient handles.

Price each, complete . . . $2.50

For bicycle head light . . . 3.00

If batteries are not wanted, deduct 50c from above prices.

For Bicycle Headlight

Adjustable Holder

For fastening Dad's Lantern to bicycle, boat, tree, wall, etc., each . . $1.00

Presto Electric Hand Lantern

Steel case, finished in black enamel with screw top. Lamp head is brass, nickel plated. Pivoted construction permits reflector to be turned at any angle. Uses any No. 6 dry cell. Fitted with new improved Mazda Tungsten Drawn Wire Filament. Lamp.

Has a 2-inch Bull's Eye lens, which greatly increases the candle power and projects an intense white beam of light for a great distance. Handle and switch are conveniently located.

Price, complete with battery $1.50
Without battery . $1.25 Extra bulbs . . .25

No. 140 Presto Electric Lantern

A complete lighting plant in a black enameled case. 7 inches high. Head is pivoted and beam may be turned in any direction. Equipped with 3-volt bulb and 3-inch Bull's Eye Lens, aided by a brilliant reflector. Uses any make of No. 6 size battery. Burns intermittently or steady as desired. An absolutely safe lamp around barn, garage or factory. Can be carried by bail or hung on a peg and light turned to any position desired.

Price with batteries . . $2.25 Without batteries $1.75

The prices in this catalog are all net. The discounts have been deducted.

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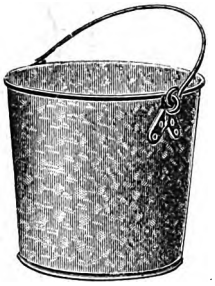
Pails

Water, Cement, Fire, Wooden and Fibre Pails

Galvanized Water Pails

Regular



Extra Heavy

Regular. Galvanized after being made. No. 29 gauge steel. Stamped ears.

Extra Heavy. Made of No. 26 gauge steel.

Regular

Cap., qts.	8	10	12	14	16
Size, in.	9¾x8½	10¾x9	11¼x10	11¾x10½	11¾x11½
Price each	$0.16	$0.20	$0.22	$0.25	$0.30
Price per doz.	1.60	1.90	2.05	2.30	2.75

Extra Heavy

Capacity, quarts	10	12	14	16
Size, inches	11x9	11¼x10	11¾x10½	12¼x12¼
Price each	$0.35	$0.40	$0.45	$0.50
Price per dozen	3.50	4.00	4.25	4.50

Stock Pail

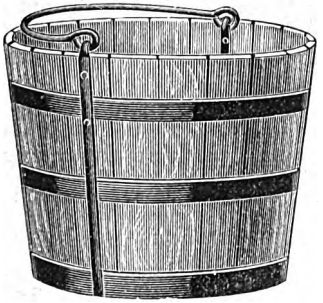
Extra Heavy Banded

Stock Pail. Capacity 14 quarts. Size 14¾x9¼.
Price each..... $0.55 Price per dozen..... $5.50

Water Pail. 2 sizes.

With Wood Handle	Price Each	Price per Doz.
Capacity 12 quarts, size 11¼x10 in.	$0.40	$4.00
Capacity 14 quarts, size 11¾x10½ in.	.45	4.50

O. I. C. Wooden Pail

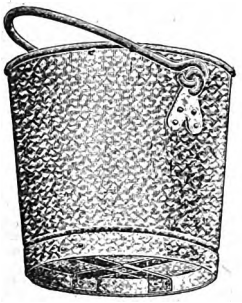


O. I. C. Pails are made of heavy oak with iron bails.
Capacity 14 quarts.
Price each..... $0.55
Price per dozen..... 5.50

Common Pine Pails

Two hoop, price each..... $0.25 Dozen..... 2.50
Three hoop, price each..... .30 Dozen..... 3.00

Cement Pails



Standard

Hercules

Standard

Made to comply with Navy Department specifications of extra heavy material. It is galvanized after being made and thoroughly tested and guaranteed not to leak. Has malleable split ears, very heavy bails and double braces on bottoms. Capacity 14 quarts.
Cap. 14 qts., price each.... $0.80 Per dozen..... $8.00

Hercules

Galvanized double extra heavy. Double extra heavy with riveted hoop. Strongly braced and banded.
Cap. 14 qts., price each... $1.20 Price per dozen. $12.00

Fire Pails

Galvanized

Fibre

Galvanized

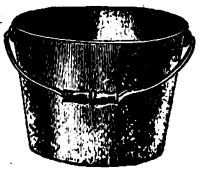
Capacity	Size, inches	Price Each	Price per Doz.
10	10¾x10½	$0.25	$2.45
12	11¼x11½	.27	2.65
14	11¾x12	.30	2.90

Fibre

Plain or Stenciled

Capacity quarts	Depth inches	Diameter, inches	Price Each	Price per Doz.
10	13	8	$0.60	$5.92

Indurated Fibre Pails



"Star"

Made from Wood Fibre

Fire

Style	Capacity quarts	Weight per Doz.	Price Each	Price per Doz.
Star	10	44 lbs.	$0.30	$2.75
Fire Stenciled	12	50 lbs.	.60	5.60

We carry the largest stock of wheelbarrows in Chicago, and the prices are right.

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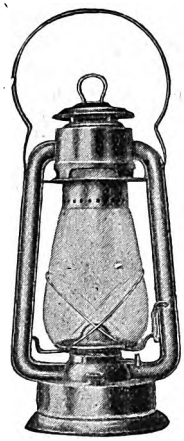
Kerosene Lanterns



Cold Blast

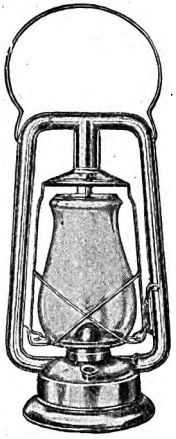
No. 2 Cold Blast for use indoors or out. Gives a steady, white light.

With White Globes
Per dozen..... $6.82
Price each..... .70
With Ruby Globe
Per dozen..... $8.45
Price each..... .85

Globes Per Dozen

White	Ruby
$0.90	$2.25

Junior Cold Blast
Per dozen..... $4.50
Price each..... .45
Globes per doz. .75



No. 0 Hot Blast

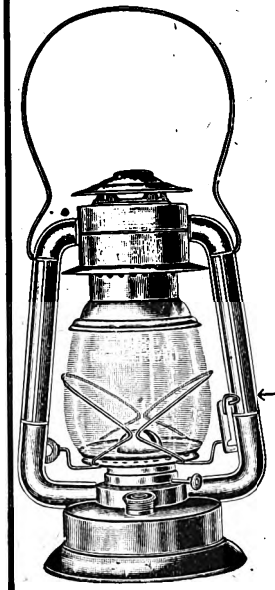
The most popular type of Hot Blast lantern made. Height with bail down, 13½ in. Fount holds oil to burn 23 hours. Gives 4 C. P. light.

With White Globes
Per dozen..... $4.06
Price each..... .40
With Ruby Globes
Per dozen..... $5.36
Price each..... .50

Globes per Dozen

White	Ruby
$0.65	$2.00

"Lightning" Lantern

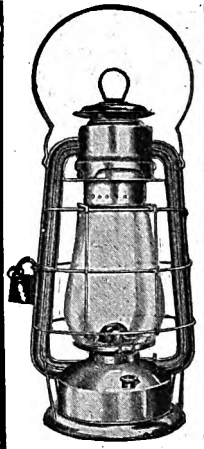


The globe is much shorter than those used on the ordinary lantern. The opening being larger allows free access in cleaning. Keeps cool and eliminates breakage. The fount holds sufficient oil to burn 32 hours. Extra quality tinplate. Domed well. Inside lever lift, large filler, seamless inside cylinder, 1-inch wick, cold blast globe. Fount holds 1½ pints of oil.

With White Globes
Price per dozen..... $7.25
Price each..... .75
With Ruby Globes
Price per dozen..... $9.00
Price each..... .90

Globes per Doz.

White	Ruby
$0.90	$2.25



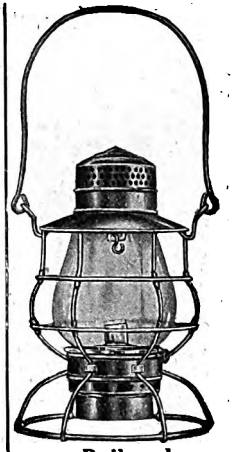
No. 2 Mill

For watchman's use. When locked it is impossible to raise globe or reach burner. Height with bail down, 15 inches. Fount holds sufficient oil to burn 20 to 23 hours. Cold Blast construction. Gives good, clear light.

With White Globes
Per dozen.... $21.45
Price each... 2.25

Globes per Dozen

White	Ruby
$0.90	$2.25



Railroad with Wire Base

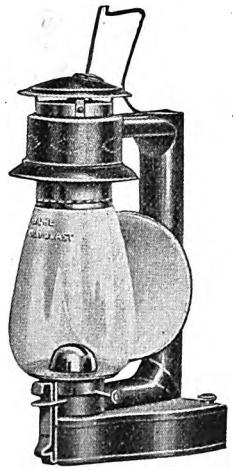
No. 39 Standard Railroad Lantern with wire base, exactly the same as the No. 39 Railroad Lantern described in other column, except for the base. Wire base is preferred by some users.

With White Globes
Per dozen..... $9.00
Price each..... .90

Globes per Dozen

White	Ruby
$0.90	$2.00

Side Wall Reflector Lamp

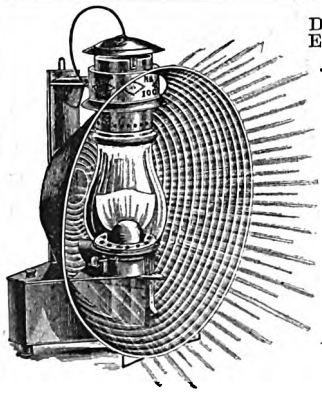


Cold Blast Extra Quality Tin Plate

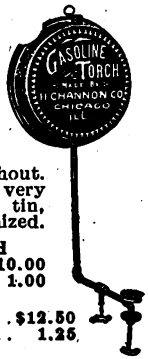
For wall or portable use. Gives a powerful light over a wide area.

Price per dozen..... $12.00
Price each..... 1.20

Globes
Price per dozen..... $0.90
Packed three in a box.



Banjo or Lighting Gasoline Torches



For indoor or outdoor lighting. Not affected by wind, rain, heat or cold. Gives strong, bright light. Our torches are of superior quality and are well made throughout. Practical in operation and very durable. Finished either tin, Japanned finish or galvanized.

Prices Tin Japanned
Dozen..... $10.00
Each..... 1.00

Galvanized
Dozen..... $12.50
Each..... 1.25

No. 20 Tin Tubular Cold Blast Searchlight

Japanned finish; throws brilliant and steady light; will burn out of doors as well as inside without smoking or flickering; it is not affected by wind or strong drafts; has 7-inch nickel plated brass reflector with 16-inch concentric corrugated hood. They are useful wherever a strong reflected light is required. They may be filled, lighted and regulated without removing the globe. Has a No. 2 cold blast burner; 1-inch wick; cold blast globe and fount holds 1¾ quarts of oil; burns 48 hours.

Price per dozen. $19.50 Price each. $1.95

Write for our special circulars on waste.

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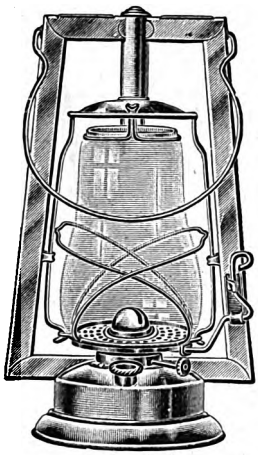
Kerosene Lanterns



"Little Star" Lantern

The "Little Star" is a favorite among lantern users. It gives a 3 C. P. light, is only 11 inches high and will burn for 12 hours straight. Patent tinned steel No. 1 burner and ⅝-inch wick. Has positive-locking globe lift and dome shaped solderless oil fount.

Price per dozen.....$3.75
Price each..... .40

Globes

Price per dozen.....$0.75

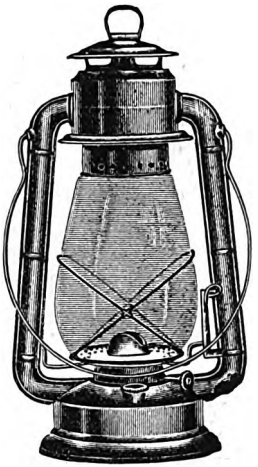
"Junior" Cold Blast Lantern

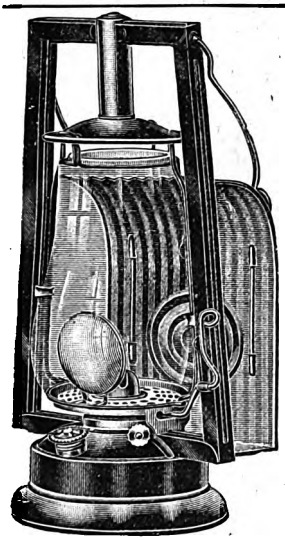
This little lantern is one of our best selling small lanterns. Used mostly around barns and on milk wagons. It stands 12 inches high, gives a 6 C. P. light and will burn for 13 hours with one filling. It has all the latest improvements; globe lift inside of frame; safety wing-lock No. 1 burner; dome-shaped solderless oil fount; ⅝-inch wick. Weight 2½ pounds.

Price per dozen.....$4.50
Price each..... .45

Globes

Price per dozen.....$0.75





"Buckeye" Dash Lamp

Black enameled dash lamp. Burns steadily, even in the strongest wind. It has a dash clip-spring, a bail for use as a hand lantern and also serves as a wall lamp. Bright corrugated tin reflector and a 2¼-inch magnifying bull's eye lens in front of flame. Has a safety wing-lock No. 1 burner; positive locking globe lift; dome shaped solderless oil fount; safety well and large oil filler. 13¼ inches high, ⅝-inch wick and burns 19 hours. Gives a bright 10 C. P. light. Weight 2 pounds.

Price per dozen.....$6.82
Price each..... .70

Globes

Price per dozen.....$0.65

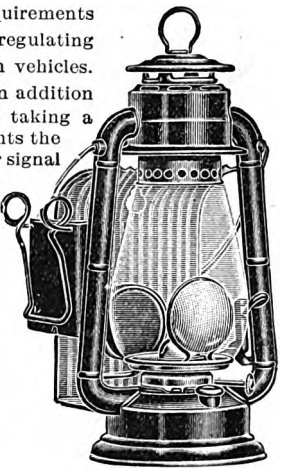
"Junior" Wagon Lamp

Designed to meet the requirements of the state and city laws regulating night lights on horse drawn vehicles. It has a clip-spring holder in addition to the combination socket taking a round or flat bracket. It lights the road and shows a red danger signal to the rear. Has a bright corrugated tin reflector and 2¼-inch magnifying bull's eye lens in front of flame; also a 2¼-inch ruby rear lens. 12 inches high; 10 C. P. light; ⅝-inch wick; burns 13 hours and weighs 2 pounds.

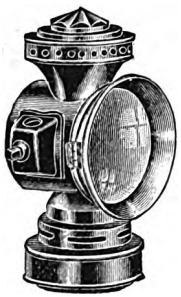
Price per dozen.....$9.50
Price each..... 1.00

Globes

Price per dozen.....$0.75



"Eureka" Driving Lamp



A reliable lamp for night driving for those who like a small but bright light. 7¼ inches high. Made of cold rolled steel. Has a 3-inch door lens, 2¼ ruby rear lens and burns for 10 hours.

Price per dozen.....$11.50
Price each..... 1.25

"Imperial" Platform Lamp

Burns steadily with a clear white flame, giving 100 C. P. reflected light. 21 inches high, 10½ inches wide, 10¼ inches deep, 8-inch reflector, 1½-inch wick. Burns 17 hours. Weight 21 pounds.

Price each.....$5.00

"Climax" Platform Lamp

For both indoor and outdoor use, dancing platform, skating ponds, etc. Two sizes, No. 1, 15 inches high, No. 2, 17½ inches high. Easy to substitute gas pipe and burner.

Price Each

No. 1.....$2.00
No. 2..... 2.25

Prices in this catalog are net. All discounts have been deducted.

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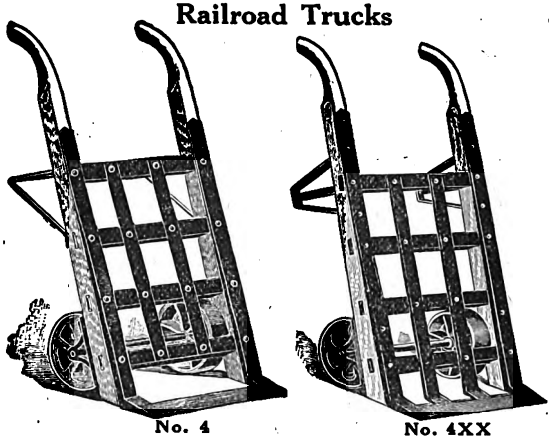
Railroad Trucks

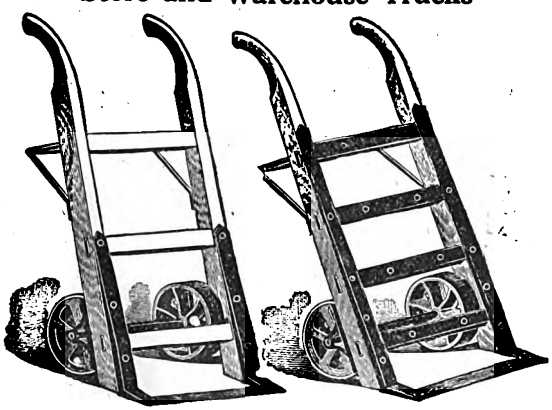


No. 4 No. 4XX

Best selected second growth hickory, oak or ash, turned steel axles, steel nose and side straps. Iron on cross bars extends through to outside of handles, bolts passing through irons, tenons and handles. Axle and collars forged from one piece. All steel parts heavy and substantial.

No.	Length inches	Width, inches	Diameter inches,	Weight, pounds	Price Each
4	60	24	10¾	120	$5.85
4XX	60	24	10¾	144	7.75

Store and Warehouse Trucks



No. 1 Half Ironed Nos. 2 & 3 Full Ironed

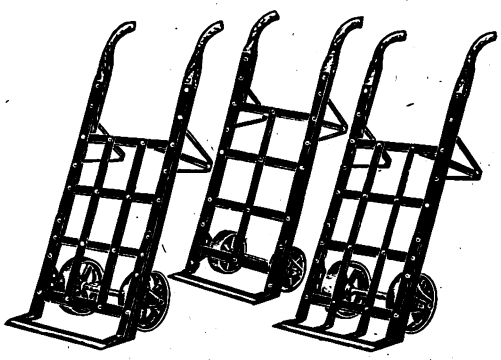
No.	Length Handles, in.	Width Truck, in.	Diameter Wheels, in.	Weight, pounds	With Iron Wheels Price Each
1	46	19	6½	43	$3.00
2	52	20	7½	68	3.80
3	56	22	9	87	5.10

Barrel, Bag and Handy Trucks

Barrel Bag Handy

Style	Length Handles, in.	Width, inches	Diameter Wheels, in.	Weight, pounds	Price Each
Bbl. Trk. No. 2.	52	20	8½	75	$4.30
Bbl. Trk. No. 3.	56	22	9½	90	5.30
Bag Truck....	42	11¼x16¾	6	19	2.00
Handy Truck..	46	12x17	6	27	2.40

Hercules Steel Warehouse Trucks



Easy running, strong and durable; for railroads, steamships, general warehouse and all heavy service. Constructed of the very best steel. Frames and axles made of steel and wheels of very best quality iron. The angular shapes combine extraordinary strength and lightness. All parts are bound and riveted together, making an exceptionally strong and rigid frame. Handles are first class hickory, strong and pleasing to the hands. Fully warranted against any imperfections in material and workmanship.

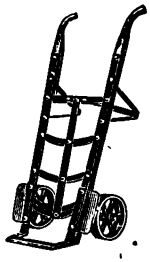
No. 3 Regular: For general work, medium heavy.

No. 4 Regular: For all purposes where a large truck is required.

No. 4A: Extra heavy; center straps, welded to dash; for hard service.

No.	Full Lgth.	Width, inches	Diam. Wheel, inches	Diam. Axles, inches	Wt., Lbs.	Price Each
3 Regular....	5	22	8½	1⅛	90	$5.00
4 Regular....	5ft.7in.	24	10¾	1½	136	6.25
4A.....	5ft.7in.	24	10¾	1½	150	7.50

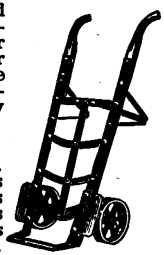
Hercules Steel Barrel Trucks



No. 3

Full length.....5 feet
Width at nose.....16 inches
Width at handles.....25 inches
Diameter, wheels.....8½ inches
Diameter, axle.....1⅛ inches
Weight.....102 lbs.

Light, strong and made of steel throughout. No. 3 is a lighter truck and designed for ordinary barrels, while No. 4 is heavy and designed for extra heavy barrels.



No. 4

Full length.....5 ft. 7 in.
Width at nose.....17 inches
Width at handles.....25 inches
Diameter, wheels.....10¾ inches
Diameter, axles.....1½ inches
Weight.....141 lbs.

No. 3. For regular work, ordinary barrels, etc., price each.....$6.25

No. 4. For heavy work, extra strong, price each.. 7.50

Skids

Length, feet	No. of Cross Bars	Price Each
6	2	$3.00
8	3	4.00
10	3	5.00
12	4	6.00

We carry an exceptionally large stock of wheel barrows and the prices are right.

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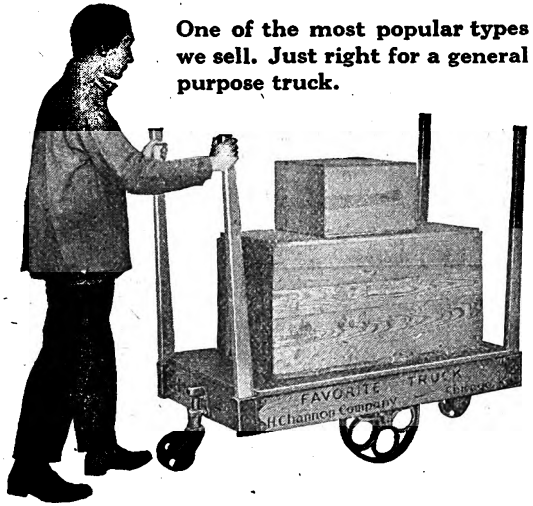
"Favorite" Factory Truck



One of the most popular types we sell. Just right for a general purpose truck.

The high wheels on this truck enable it to be moved around very rapidly and the swivel casters on each end allow it to be turned completely around in a very small space. The entire area of the platform is available for load, the heavy iron stake pockets being set out over the frame. Four ⅝-inch iron rods pass across frame and through the iron pockets, making truck strong and rigid and corners almost indestructible. Frame is 1¾ inches by 5½ inches hardwood, strongly assembled; platform 1-inch hardwood, dressed; stakes 30 inches high, removable. Illustration shows truck No. 2. No. 3 has two casters at each end.

	Size Platform, inches	Diam. of Wheels, in.	Price Each
No. 2	28x48	14	**$6.50**
No. 3	36x60	16	**9.00**

Wagon Truck

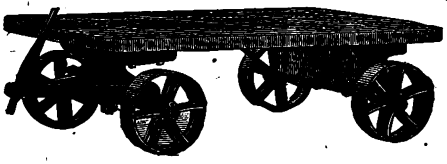


Fig. 700

Built of the best selected Vermont oak or ash lumber. Furnished with cast iron fifth wheel and the rear axle strongly braced to platform. Axles turned and wheels bored.

	Size Platform, ins.	Diam. of Wheel, ins.	Weight, Lbs.	Price Each
No. 1	24x36	7¾	110	**$ 6.50**
No. 2	26x38	7¾	120	**6.75**
No. 3	28x40	7¾	130	**7.25**
No. 4	30x42	8¼	155	**8.00**
No. 5	32x44	8¼	158	**8.75**
No. 6	34x46	8¼	172	**10.00**

Baggage or Express Wagon

Made of carefully selected material heavily ironed and braced substantially. Same as used by all the express companies: No. 1 at large stations and No. 2 at smaller stations. Well painted and varnished.

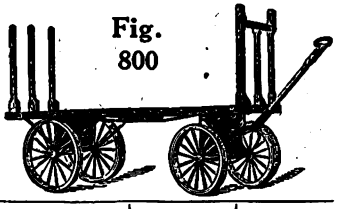


Fig. 800

No.	Diam. Rear Wheels	Diam. Front Wheels	Size of Platform	Weight, pounds	Price Each
1	31	28	39 in. x 10 ft.	670	**$35.00**
2	18	18	30 in. x 7 ft.	375	**30.00**

Channon's Improved Truck

For Grocers, Mills, Factories, Warehouses, etc. Built strong and substantial.

Fig. 500

This truck is especially adapted to the needs of merchants, millers, warehouse men and also used in factories and depots. Can be made to fit scales or elevators, thus doing away with transferring the load. The front wheels being casters truck will turn in its own length and can be run on scale or elevator at any angle. One man can handle nearly twice as much with this truck as the bulk of the weight comes over the wheels which are of large diameter. The caster wheels in front enable the operator to turn the truck in any direction with ease. For making up orders or unpacking shipments, this truck is indispensable. Regularly furnished with iron wheels, but rubber tires can be furnished if so desired, at extra price. This truck can be made in any size to meet special requirements; also with boxes having removable or hinged ends or sides. These prices will be quoted on application.

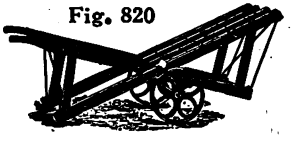
No.	Size of Platform, feet	Size of Wheel, inches	Size of Casters, inches	Weight, pounds	Price Each
A	2 x4	12x2	6x1⅜	165	**$10.00**
B	2½x4	12x2	6x1¾	170	**11.50**
C	3 x5	12x2	6x1⅜	200	**11.75**
F	3 x5	18x2¼	9x1½	240	**13.00**

Dry Goods Trucks

These trucks are designed for handling bolts of goods. Regularly furnished with plain iron wheels. Channon universal rubber tired wheels can be furnished at extra prices. Cold rolled steel axles. Flatform varnished, iron parts black.

No.	Size of Platform, inches	Diam. of Wheels, inches	Height of End Racks, inches	Weight pounds	Price Each
2	27x47	10	25	190	**$11.75**

Fig. 820



Baggage Barrow

Made of choice hickory or oak, heavily braced. Axles are turned and wheels bored.

No.	Size Platform inches	Length of Dash, inches	Size Wheels, inches	Hght. at Rear Leg inches	Weight, pounds	Price Each
1	32½x24	42	20x3½	19½	171	**$18.25**
2	42 x27	54	20x3½	24	250	**21.25**
3	42 x30	54	20x3½	25	300	**24.00**

Stove Carrier Fig. 480

Light, but well made and strong. 4-in. wheels, 12½ in. across bottom, 19 in. across top. Price each.. **$5.00**

Our shovels are all made in our own factory. Prompt shipments always.

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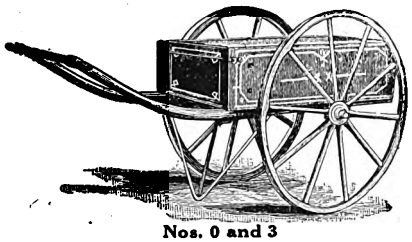
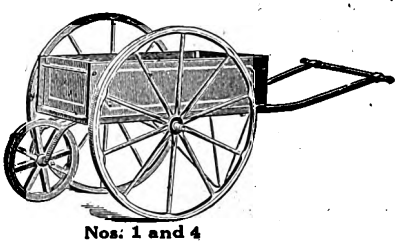
Hand Carts



Nos. 0 and 3



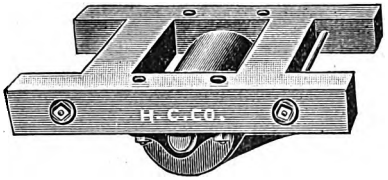
Nos. 1 and 4

No. 3. A strongly built hand cart for painters, carpenters, bill posters, masons, etc., as well as for farm work and other heavy usage. It is also a handy cart for delivery purposes. The box is made of basswood with a steel band all around the top to protect against battered edges and broken corners. The sides and ends are removable. The frame is made of maple. The wheels are extra large to permit easy handling. A boy can easily run it carrying its greatest capacity.

No. 4. A three-wheeled cart for all delivery purposes. The third wheel is built very substantially, for use in cities to assist in crossing gutters. Both ends and sides are removable, leaving a flat bottom. Built of the same material as the No. 3 cart. Both No. 3 and No. 4 carts are shipped with 1-inch tread wood wheels unless otherwise ordered.

No.	Diameter of Wheels, inches	Diameter of Axles, inches	Size of Box, Outside, inches	Depth of Box, inches	Weight Each, pounds	Price Each with Steel Wheels	Price Each with 1-inch Tread Wheels
0	42	1	48x28	10	100	$ 9.40	$7.90
1	36	⅞	40x23	10	90	7.90	6.75
3	42	1	48x28	10	100	10.50	9.00
4	36	⅞	40x23	10	90	9.00	7.90

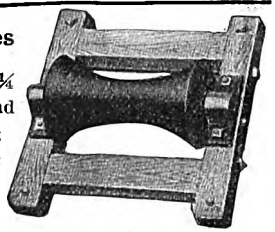
Timber Trucks or Dollies



These trucks can be inverted and used as rollers. Frames are of hard maple, thoroughly bolted; rollers are of pipe with cast heads shrunk on.

No.	Diameter of Roller	Size of Frame	Weight, pounds	Price Each
2	5 in. reg. size...	18x18	46	$3.50
3	6 in. reg. size...	18x18	55	4.25
4	7 in. heavy....	23x23	72	5.50
5	8 in. ex. heavy..	26x26	115	7.75

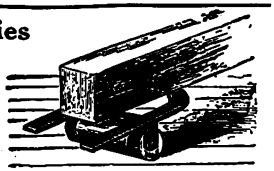
No. 6 Concave Dollies



Rollers 12½ inches long, 7¼ inch diameter at each end and 3⅞ inch diameter at center; frame 18x18 inches; weight 52 pounds.

Price each.....$5.25

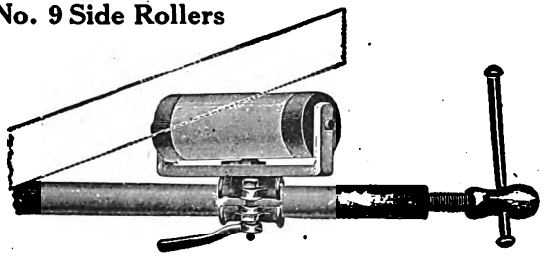
No. 7 Horse Shoe Dollies



For pushing lumber from or on to a pile. Can be placed near the edge and used from the ground. Roller 14x4 inches in diameter.

Price each.....$3.00

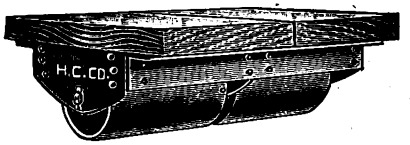
No. 9 Side Rollers



The roller is made of metal rubing and is very strong. It is easily placed in car doors, hatchways of vessels, etc. The roller slides along the stock and can be clamped rigidly at any position required.

No. 9. Side rollers, price each.....$7.50

Universal "Boggie" Roller



Capacity 4 tons

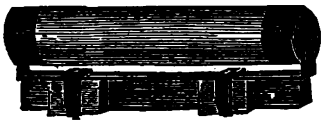
Has two independent rollers on the same axle, which work same as a two-wheel truck, swinging around as if on a pivot.

Maple platform with wrought iron frame riveted.

Height over all, 8 inches; rollers, 5½ inches; length, 24 inches; width, 18 inches; weight, 100 pounds.

Price each.....$12.00

No. 8 End Rollers



These rollers are especially adapted for the ends of cars. Roller 14x4 inches in diameter.

Price each.....$2.75

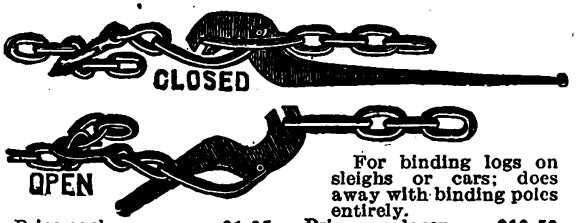
Box Trucks

Low trucks, strong and well made, for handling large boxes or bales. Sharp cone head bolts to prevent package from slipping. Axles turned and wheels bored.

No.	Width, inches	Length, inches	Size, Wheels	Weight, pounds	Price Each
1	18	18	4x1⅜	27	$2.50
2	18	26	4x1⅜	32	2.75

Axles are ¾-inch square.

Log Binders



For binding logs on sleighs or cars; does away with binding poles entirely.

Price each.....$1.95 Price per dozen. ...$19.50

We carry a complete line of warehouse, railroad and wagon trucks.

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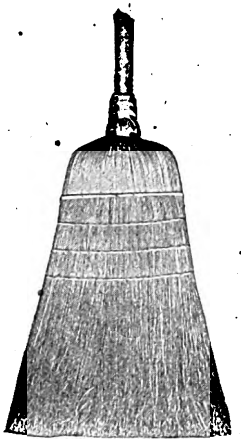
Brooms

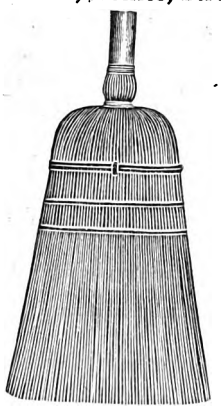
For Mills, Factories, Warehouses, Stores, Homes, Streets, Tracks, Frogs and Switches



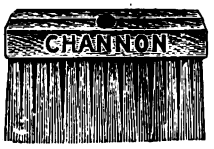
No. 6-C

No. 4

Nos. 5 & 7

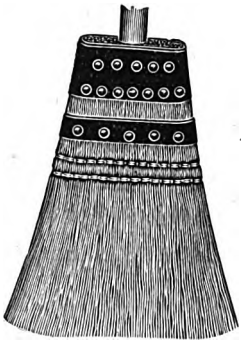


No. 2



No. 8

Nos 10 & 11



No. 9

No. 12

No. 6-C

Warehouse Broom. For use in mills, factories, warehouses and stores. A strong well made corn and bamboo mixed broom, made of the best grade of broom corn, reenforced by electrically welded steel cable above three twine bands.

Weight per dozen, pounds	32	36	40
Price each	$0.45	$0.50	$0.60
Price per dozen	4.50	5.00	6.00

No. 2

House Broom. We highly recommend this broom for use on parlor carpets, rugs, etc. It is made of the first quality selected corn and securely sewed with strong twine. French polished handle.

	House	Janitor
Weight per dozen, pounds	25	32
Price each	$0.50	$0.70
Price per dozen	5.00	7.00

No. 9 Mill

Capitol Mill Broom. Made of a combination of selected broom corn and flat bamboo fibre, securely bound to a good hardwood handle with steel band and fastened with wrought nails. Used for sweeping floors or switches, frogs, crossings, etc.

Weight per dozen, pounds	35
Price each	$0.40
Price per dozen	4.00

No. 4

Rattan Push Broom. A well made stapled push broom for cleaning streets and stables and all heavy sweeping. Made of rattan.

Block, inches	Rows of Fibre	Price Each	Price per Doz.
14	4	$0.40	$3.75
16	4	.45	4.50
16	6	.55	5.25

No. 5

Snow and Switch Broom. Made from double length fibre, hardwood handle securely bound with steel band. Eleven-inch sweep. Impossible for handle or fibre to work loose. Weight 30 pounds per dozen.
Price each.....$0.35 Price per dozen.....$3.25

No. 7

Snow Broom with Chisel Point. Same as No. 5, but with chisel point for frogs and switches.
Price each.....$0.45 Price per dozen.....$4.25

No. 8

Steel Wire Push Broom. Made of 5-inch flat tempered steel. 52-inch hardwood handles. Handles extra:
Price each.....$0.10 Price per dozen.....$1.00

Block, inches	Wire, inches	Sweep, inches	Price Each	Price per Doz.
12	5	11	$0.45	$4.50
14	5	12	.50	5.00
16	5	13	.55	5.50

No. 10

Frog Broom. Especially designed for sweeping frogs and switches. Made with 4½-inch steel wire and 11-inch block. Will last indefinitely. Long plain hardwood handle.
Price each.....$0.50 Price per dozen.....$5.00

No. 11

Frog Broom with Chisel Point. Same as No. 10, only furnished with chisel point for use in frogs and switches.
Price each.....$0.60 Price per dozen.....$6.00

No. 12

Bass Fibre Broom. Made of best African fibre or coir. A very economical brush for use on sidewalks, floors and basements. Will outlast three ordinary brooms. Handles extra:
Price each.....$0.10 Price per dozen.....$1.00

Block, inches	Rows of Fibre	Price Each	Price per Doz.
14	4	$0.65	$6.37
16	4	.85	8.62
16	6	1.00	10.12

See Auto Tire Section for all kinds of tire accessories.

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Tool Handles

We take particular pride in both the quality and the size of our stock of tool handles. This section of our business has grown to large proportions, because of the uniformly high quality of the handles and our ability to make immediate shipments from our immense stock. The illustrations below have been made from actual photographs and accurately show the proportions of the different sections of the handles. Only the styles generally called for are shown and carried in stock. The approximate weights quoted are net and do not include packing.

Grades

Extra Grade: Carefully carved from second growth hickory with wax finish; absolutely clear and white and free from all imperfections. For those who demand and expect the very best.

No. 1 Grade: Second growth hickory; plain finish; small sound knots permitted, but otherwise free from blemish and strictly serviceable.

Hammer Handles
Extra Grade Only

Packed 5 dozen in a case

Adze Eye Nail

Length, inches	14
Weight per dozen, pounds	5
Price per dozen	$0.68

Riveting

Length, inches	12
Weight per dozen, pounds	3
Price per dozen	$0.60

Machinists'

Length, inches	14	16	18
Weight per dozen, pounds	3½	4	4½
Price per dozen	$0.68	$0.75	$0.80

Blacksmiths'

Length, inches	18	20	22	24
Weight per doz., pounds.	6	7	8	9
Price per dozen	$0.80	$0.90	$1.00	$1.10

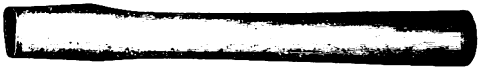
Hatchet Handles
Extra Grade Only

Packed 5 dozen in a case

Broad

Length, inches	18
Weight per dozen, pounds	8½
Price per dozen	$0.83

Regular



Length, inches	14
Weight per dozen, pounds	6
Price per dozen	$0.68

Axe Handles

Packed 2 dozen in a case

Single Bit, Oval

Double Bit, Oval

Boys' Axe Handle

Kind	Single Bit	Double Bit	Boys
Length, inches	36	36	28
Weight per dozen, pounds	16	18	13
Price per dozen, Extra Grade	$2.94	$2.94	$2.04
Price per dozen, No. 1 Grade	1.47	1.47	1.17

We carry the largest stock of handles in Chicago.

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Railroad Pick Handles

Length 36 inches. Packed 5 dozen in a crate. Weight about 30 pounds per dozen.

Extra Grade, price per dozen.....$3.45
Excelsior Grade, price per dozen..... 2.40
No. 1 Grade, price per dozen.....$1.80

Mining Pick Handles
Extra Grade Only

Drifting and Coal Miners

Poll Pick

Drifting and Coal Miners'

Length 34 inches. Price per dozen.....$3.00

Poll Pick

Length 34 inches. Price per dozen.....$3.00

Packed 5 dozen in a case. Weight about 25 pounds per dozen.

Sledge, Tool and Maul Handles

Extra Grade

Length 30 inches. Weight about 13 pounds per dozen.
Price per dozen.....$1.68

Length 36 inches. Weight about 16 pounds per dozen.
Price per dozen.....$2.01

No. 1 Grade

Length 30 inches. Weight about 13 pounds per dozen.
Price per dozen.....$1.11

Length 36 inches. Weight about 16 pounds per dozen.
Price per dozen.....$1.38

Packed 5 dozen in a case.

Grub Hoe Handles
Extra Grade Only

Length 36 inches. Weight about 30 pounds.

Price per dozen.....$3.00

Adze Handles for Railroad, House Carpenter and Ship Adzes
Extra Grade Only

Length 34 inches. Weight about 18 pounds per dozen.

Price per dozen.....$3.00

All weights quoted above are approximate only and are net; weights of packing not included.

If your requirements are not shown in this catalog, write us.

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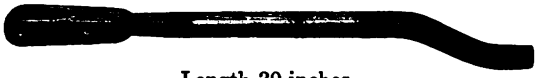
Shovel, Spade and Scoop Handles

Wood "D" Handle for Chisholm Shovel

Straight or Bent, for Hollow or Open Pattern. Length 27½ Inches

	Price Each	Price per Doz.
Bent	$0.29	$2.90
Straight	.29	2.90

Regular "D" Ames Bend for Socket and Backstrap Pattern



Length 30 inches.

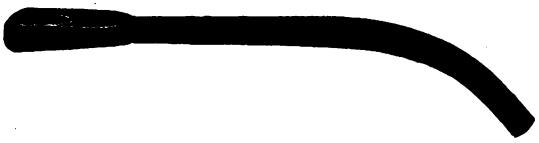
Price each $0.29
Price per dozen 2.90

Wood "D" Spade for Socket and Backstrap Pattern

Length 30 inches.

Price each $0.29
Price per dozen 2.90

Wood "D" Scoop for Backstrap Pattern



Length 29 inches.

Price each $0.29
Price per dozen 2.90

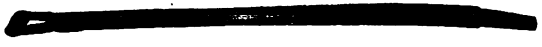
Wood "D" for Coal and Coke

With caps and strap ferrule.

Price each ..... $0.48 Price per dozen $4.75

Malleable "D's"

Manure and Spading



Bent, Bored and Chucked

Price each $0.25
Price per dozen 2.25

Long Handles

Ames or Regular Bend for Socket and Backstrap Shovels

Length 4½ feet.

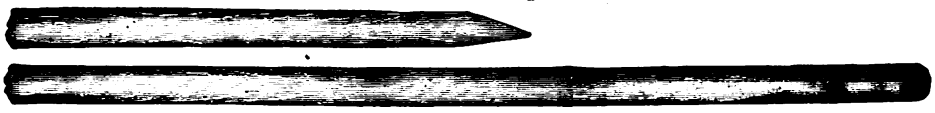
Price each ..... $0.28 · Price per dozen $2.75

Hay Fork Handles

Chucked and bored

Length, feet	Price Each	Price per Doz.
4	$0.13	$1.25
4½	.14	1.35
5	.15	1.50
6	.19	1.90

Telegraph Shovel and Spoon Handles



We carry 8-foot XX grade only in stock.

Shovel Handles

Length, feet	Price Each	Price per Dozen
8	$0.85	$ 8.35
9	1.10	11.00
10	1.40	13.95

Spoon Handles

Length feet	Price Each	Price per Dozen
8	$0.90	$ 9.00
9	1.15	11.65
10	1.45	14.35

Malleable "D's"

For Shovel and Fork Handles

Wood Head

Style	Price per Doz.	Price Each
Wood head, malleable fork and socket	$0.90	$0.09
All iron for railroad tamping	1.00	.10

Iron Head

Our line of shovels is large and varied. See index.

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Picks and Mattocks

Railroad or Clay Picks

With Tool Steel Points

Adze eye—pick and chisel point—high grade solid steel. The points of these picks are made of the best quality tool steel. Will give better and longer service than two ordinary picks. Especially adapted for working in rock and brick. Takes standard railroad pick handle.

Weight, Lbs.	Price Each	Price per Doz.
7 ½	$0.52	$5.15
8 ½	.54	5.55

No. 33 Standard Dirt Picks

Point and Chisel

Furnished in the 6 to 7-pound size, unless otherwise ordered.

Weight Lbs.	Price Each	Price per Doz.
5 to 6	$0.28	$2.80
6 to 7	.30	3.00
7 to 8	.32	3.20
8 to 9	.36	3.60
9 to 10	.40	4.00

Railroad Tamping Picks

High grade solid steel. V head, adze eye.

Weight, Lbs.	Price Each	Price per Doz.
6 to 7	$0.45	$4.50
8 to 9	.50	5.00

Drifting Picks

Adze eye. Points of best grade crucible tool steel.

Weight, Lbs.	Price Each	Price per Doz.
4 ½	$0.38	$3.75
6	.45	4.40

Short Ear Coal Picks

Cutting and mining shape. Tool steel points, soft steel center. Adze eye.

Weight, Lbs.	Price Each	Price per Doz.
3 ½	$0.35	$3.50
4 ½	.40	4.00

Poll Picks

Solid hard steel, tempered, crucible steel points.

Weight, Lbs.	Price Each	Price per Doz.
3 ½	$0.42	$4.05
4 ½	.47	4.60

Wrecking Picks

Similar to poll pick, but has railroad pick eye. Used for prying stripping, lifting, etc. Solid hard steel.

Weight, Lbs.	Price Each	Price per Doz.
5	$0.50	$5.00

Cutter Mattock

Best tempered steel. Made for service and durability. Long or short cutter. Specify which is wanted.

Style	Weight pounds	Size Blade, in	Size Cutter, in.	Price Each	Price per Doz.
Short cutter	5	3 ½x7 ½	2 ½x4 ¼	$0.40	$4.00
Long cutter	5	3 ½x7 ½	2 ½x5 ¼	.40	4.00

Pick Mattock

Same as above, but with pick end of hardened steel.

Weight, pounds	Size Blade, in.	Size Cutter, in.	Price Each	Price per Doz.
5 ½	4 ⅛x5 ½	8 ½	$0.40	$4.00

Special Asphalt Mattock

This make is made with best quality crucible steel point and cutter. Intended for hard service. Oil finished.

Weight, Lbs.	Price Each	Price per Doz.
9	$0.75	$7.50

Asphalt Mattock

Asphalt mattocks with double cutters are sometimes called asphalt axes. Oil finished.

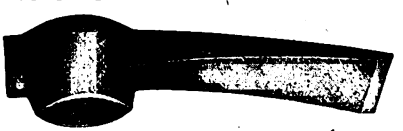
Weight, Lbs.	Price Each	Price per Doz.
8	$0.60	$6.00

Poll Mattock

A very handy combination tool. Designed for contractors. Made of high grade steel.

Weight, Lbs.	Price Each	Price per Doz.
5 to 7	$0.75	$7.50

Contractors' Caisson Grub Hoe



A superior tool of the highest grade, for difficult digging and cutting work. Eye is shaped for regular pick handle. Body of hoe made of soft steel, heavy and strong. Blade of crucible steel securely inserted and welded to eye.

Extra heavy for hard pan; 8 pounds; 3x12 inches.

Price each.....$1.50 Price per dozen.....$15.00

Grub Hoe

Adze eye. Made of good quality steel and properly tempered.

No.	Weight, pounds	Size, inches	Price Each	Price per Doz.
1	3 ½	3 ¾x10 ¾	$0.33	$3.25
2	4	4 x11 ¼	.35	3.40
3	4 ½	4 ¼x11 ½	.35	3.50

Heavy pattern; 5 pounds; 4 ¼x11 ½ inches.

Price each.....$0.60 Price per dozen.....$6.00

Prices herein are net. All discounts have been deducted.

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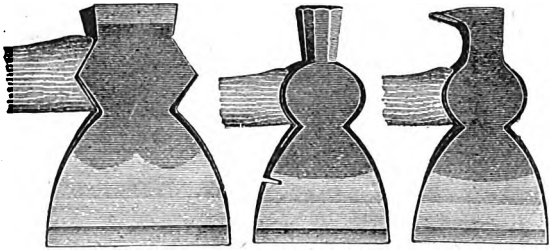
Axes and Hatchets

Usona Hatchets

Made of finest quality forged steel, with tempered bit and ebony.



Broad or Bench Western Pattern — Shingling — Claw

Broad or Bench

No.	Width Cut, inches	Weight Each	Price Each	Price per Doz.
2	4½	2 lbs. 10 oz.	$0.50	$5.25
3	5	3 lbs.	.60	5.75
4	5½	3 lbs. 2 oz.	.65	6.50
5	6	4 lbs.	.75	7.50
6	6½	4 lbs. 6 oz.	.80	8.00
	Shingling Hatchets			
2	3⅞	2 lbs. 4 oz.	$0.38	$3.75
3	4⅜	2 lbs. 9 oz.	.40	4.00
	Claw Hatchets			
2	3⅞	2 lbs. 4 oz.	$0.42	$4.25
3	4⅜	2 lbs. 12 oz.	.45	4.50

Germantown Half Hatchets

With or Without Scored Heads.

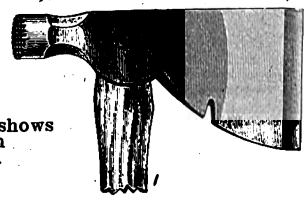


Illustration shows hatchet with scored head.

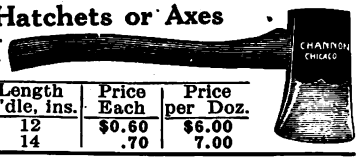
Standard carbuilders' pattern, olive bronze finish. Forged from one piece best crucible tool steel.

With Scored Head

No.	Size	Width Cut, in.	Weight Each	Price, Each	Price per Doz.
0318	2	3½	2 lbs. 2 oz.	$0.75	$7.70
0318½	3	3¾	2 lbs. 6 oz.	.80	8.00
		Without Scored Head			
318	2	3½	2 lbs. 2 oz.	$0.75	$7.40
318½	3	3¾	2 lbs. 6 oz.	.80	7.70

Hunters' Hatchets or Axes

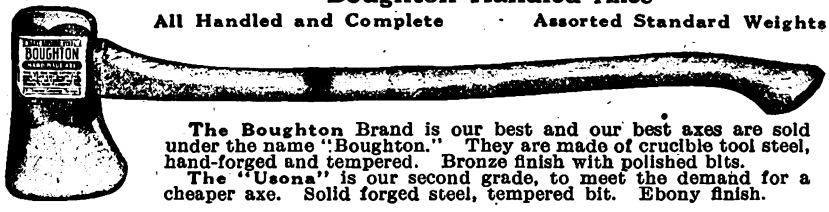
A camper's or hunter's necessity. Well built with flint edge.



No.	Weight Each, Lbs.	Length H'dle, ins.	Price Each	Price per Doz.
0	1¼	12	$0.60	$6.00
1	2	14	.70	7.00

Boughton Handled Axes

All Handled and Complete — Assorted Standard Weights



The Boughton Brand is our best and our best axes are sold under the name "Boughton." They are made of crucible tool steel, hand-forged and tempered. Bronze finish with polished bits.

The "Usona" is our second grade, to meet the demand for a cheaper axe. Solid forged steel, tempered bit. Ebony finish.

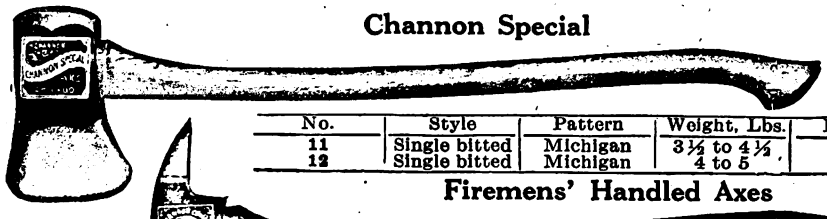
Boughton

No.	Style	Pattern	Weight, pounds	Price Each	Price per Doz.
15	Single bitted	Michigan	3½ to 4½	$0.80	$ 8.00
16	Single bitted	Michigan	4 to 5	.90	9.00
17	Single bitted	Michigan	5 to 6	.95	9.50
18	Double bitted	Michigan	4 to 5	1.00	10.00

Usona

No.	Style	Pattern	Weight, pounds	Price Each	Price per Doz.
1	Single bitted	Michigan	3½ to 4½	$0.75	$7.50
2	Single bitted	Michigan	4 to 5	.80	8.00

Channon Special



Well made axe with a good grade hardwood handle, bronzed head and polished bits.

No.	Style	Pattern	Weight, Lbs.	Price Each	Price per Doz.
11	Single bitted	Michigan	3½ to 4½	$0.60	$6.00
12	Single bitted	Michigan	4 to 5	.65	6.50

Firemens' Handled Axes

Weight Five Pounds

Width of Cut, 5 Inches

Made to conform to the specifications of the fire underwriters. Head and handle enameled red, point and blade highly polished.

Price each..... $ 1.25
Price per dozen..... 12.50
Rust proof hangers for attaching to wall, price per set..... .25

All above axes and hatchets are furnished handled.

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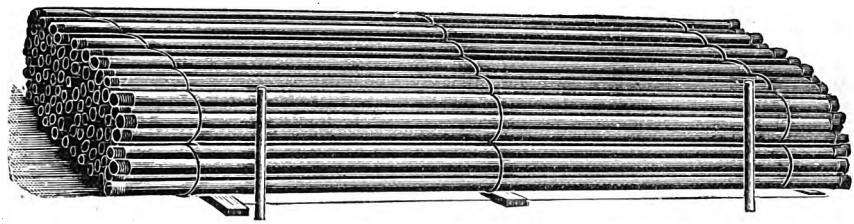
Standard Wrought Pipe for Gas, Steam and Water



When ordering pipe, it should be clearly specified whether "Wrought Steel" or genuine "Wrought Iron" Pipe is wanted. A great many orders are received which merely call for pipe. On such orders we always ship black wrought steel pipe.

A few years ago, owing to the competitive condition of the market, a cheaper pipe was placed on the market and was known as "Merchant or Standard Wrought Pipe." This grade is no longer made, however, and all pipe we sell is full "Card" or "Standard" weight, subject, however, to 5 per cent variation. All weights and dimensions given in the tables below are nominal.

Standard Pipe

Nominal Inside Diam., inches	Price per Foot		Nominal Thickness, inches	Nominal Weight per foot	No. of Threads per inch of Screw
	Black	Galvanized			
⅛	$0.02	$0.03½	.068	.245	27
¼	.02	.03½	.088	.425	18
⅜	.02	.03½	.091	.568	18
½	.02½	.04	.109	.852	14
¾	.03	.06	.113	1.134	14
1	.04¼	.08	.133	1.684	11½
1¼	.06	.09¾	.140	2.281	11½
1½	.07	.13	.145	2.731	11½
2	.09½	.20½	.154	3.678	11½
2½	.15	.27¼	.203	5.819	8
3	.19¾	.34	.216	7.616	8
3½	.24¾	.40	.226	9.202	8
4	.30	.46¾	.237	10.889	8
4½	.34¼	.54½	.247	12.642	8
5	.40	.71	.258	14.810	8
6	.52	1.07	.280	19.185	8
7	.71½	1.13	.301	23.769	8
8	.75	1.30	.277	25.000	8
9			.342	34.188	8
10	Prices on these sizes quoted upon application.		.307	35.000	8
11			.375	46.247	8
12			.330	45.000	8
13			.375	55.824	8
14			.375	60.375	8
15			.375	64.500	8

The permissible variation in weight in 5 per cent above and 5 per cent below figures given in table above.

All weights given in pounds and all dimensions given in inches.

Unless otherwise ordered standard pipe is always furnished with threads and couplings in random lengths (16 to 20 feet).

For cut lengths, an extra change will be made for cutting and threading.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

Prices For Cutting Standard Threads

Size, in...	⅛	¼	⅜	½	¾	1	1¼
Price each	.02½	.02½	.02½	.02½	.02½	.03	.03½
Size, in...	1½	2	2½	3	3½	4	4½
Price each	.05	.05	.05	.07	.10	.12	.18
Size, in...	5	6	7	8	9	10	12
Price each	.27	.35	.43	.50	.63	.75	1.25

Extra Strong and Double Extra Strong Wrought Pipe

Furnished in random lengths and with plain ends, unless otherwise specified. Random length Extra Strong and Double Extra Strong Pipe is considered to be 12 to 22 feet, but we reserve the right of supplying not exceeding 5 per cent of total order in lengths from 6 to 12 feet. For cut lengths, an extra charge will be made above random. For pipe fitted with threads and couplings and extra charge will be made above regular.

Extra Strong Wrought Pipe

Nominal Inside Diam- inches	Price per Foot		External Diam., inches	Thickness inches	Weight per Foot, pounds
	Black	Galvanized			
⅛	$0.05½	$0.08	.405	.095	.314
¼	.03½	.05½	.540	.119	.535
⅜	.03½	.05½	.675	.126	.738
½	.04½	.06	.840	.147	1.087
¾	.05½	.08	1.050	.154	1.473
1	.08	.11	1.315	.179	2.171
1¼	.11	.15	1.660	.191	2.996
1½	.13	.18½	1.900	.200	3.631
2	.17	.24½	2.375	.218	5.022
2½	.25½	.37	2.875	.276	7.661
3	.34	.49½	3.500	.300	10.252
3½	.44	.63	4.000	.318	12.505
4	.53	.75	4.500	.337	14.983
4½	.72	.99	5.000	.355	17.611
5	.83	1.14	5.563	.375	20.778
6	1.14	1.57	6.625	.432	28.573
7	Prices on these sizes will be quoted on application		7.625	.500	38.048
8			8.625	.500	43.388
9			9.625	.500	48.728
10			10.750	.500	54.735
11			11.750	.500	60.075
12			12.750	.500	65.415

Permissible weight variation 5 per cent above and below.

Double Extra Strong Wrought Pipe

Nominal Inside Diam., inches	Price per Foot		External Diam., inches	Thickness, inches	Weight per Foot, pounds
	Black	Glavanized			
½	$0.19½	$0.22½	.840	.252	1.714
¾	.19½	.24	1.050	.434	2.440
1	.20½	.36	1.315	.599	3.659
1¼	.29	.44½	1.660	.896	5.214
1½	.36	.59½	1.900	1.100	6.408
2	.46	.89	2.375	1.503	9.029
2½	.69	.93½	2.875	1.771	13.695
3	1.02	1.26	3.500	2.300	18.583
3½	1.27	1.56	4.000	2.728	22.850
4	1.52	1.88	4.500	3.152	27.541
4½	1.79	2.22	5.000	3.580	32.530
5	2.12	2.62	5.563	4.063	38.552
6	2.93	3.62	6.625	4.897	53.160
7	Prices on these sizes will be quoted on application		7.625	5.875	63.079
8			8.625	6.875	72.424

Permissible weight variation 10 per cent above and below.

Prices on Wrought Iron and Genuine A. M. Byers Pipe quoted on application.

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Malleable and Cast Iron Pipe Fittings

Elbows

Cast Iron

Malleable

45° Malleable

45° Cast Iron

Street

45° Street

Cast Iron, Price Each

Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6
Right hand	$0.02	$0.02	$0.02½	$0.03	$0.04½	$0.05½	$0.07	$0.10	$0.18	$0.26½	$0.42	$0.70	$0.96½
Right and left	.02½	.02½	.02½	.03½	.04½	.06½	.08	.11½	.21	.30	.....	.....	.....
R. H. galvanized	.04	.04	.04½	.06	.07½	.11½	.14	.20	.35	.53	.84	1.40	1.92
Reducing	.....	.....	.02½	.03½	.04½	.06½	.08	.11½	.21	.30	.49	.81	1.10½
Reducing, galvanized	.....	.....	.05	.07	.08½	.12½	.16	.22½	.42	.59	.98	1.61	2.21
45° black	.....	.02½	.02½	.04	.04½	.07	.08½	.12	.21	.32	.51	.88	1.21
45° galvanized	.....	.04½	.05	.07	.08½	.13½	.17	.24	.42	.63	1.02	1.75	2.42

Malleable Iron, Price Each

Size, inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
R. H. straight and reducing	$0.02½	$0.02½	$0.03	$0.04	$0.05½	$0.08	$0.09	$0.12½	$0.18	$0.32	$0.53	$1.05
Right and left	.....	.03½	.04	.05	.06	.09	.11	.14	.23	.....	.....	.....
R. H. galvanized	.03	.03½	.04	.05	.07	.11½	.14	.21	.32	.53	.91	1.75
45° black	.....	.03	.04	.04½	.06½	.09½	.13	.19	.29	.44	.88	1.58
45° galvanized	.....	.04½	.05½	.07	.09	.14	.18	.30	.47½	.67	1.31½	2.36½
Street	.....	.04	.04	.04½	.07	.09	.14	.19½	.32	.53	.79	1.23
Street, galvanized	.....	.04½	.04½	.05½	.10	.12½	.19½	.28	.46	.79	1.23	.....
Side outlet	.....	.....	.03	.04	.06½	.11	.16	.21	.35	.....	.....	.....

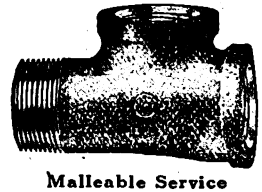
Tees

Cast Iron Straight

C. I. Straight & Red

Malleable St. & Red.

Malleable 4-Way


Malleable Service

Cast Iron, Price Each

Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6
Straight	$0.03	$0.03	$0.03½	$0.04½	$0.05½	$0.08	$0.10½	$0.14½	$0.26	$0.39	$0.61½	$1.05	$1.40
Straight, galvanized	.06	.06	.06½	.08½	.11	.16½	.20½	.29	.51½	.77	1.23	2.10	2.80
Reducing	.....	.....	.04	.05	.06	.09½	.12	.16½	.29	.44	.70	1.23	1.61
Reducing, galvanized	.....	.....	.07	.10	.12	.19	.23	.33	.58	.88	1.40	2.45	3.12

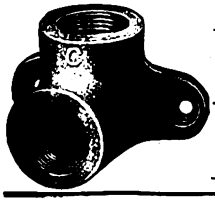
Malleable Iron, Price Each

Size, inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Straight and reducing	$0.02½	$0.03	$0.03½	$0.04	$0.05½	$0.08	$0.11	$0.16	$0.21	$0.37	$0.60	$1.19
Straight and red., galvanized	.03½	.04	.05	.06	.07	.13½	.18	.25	.35	.67	1.05	2.01
Four way	.....	.....	.04½	.05	.07	.12	.17½	.28	.44	.....	.....	.....
Four way, galvanized	.....	.....	.06	.07	.09½	.17½	.24½	.38½	.61½	.....	.....	.....

Malleable Iron Service Tees, Price Each

Size, inches	⅜	½	¾	1	1¼	1½	2	2½	3x2½x3	3x3x4
Black	$0.04½	$0.05½	$0.09	$0.12½	$0.18	$0.26½	$0.40½	$0.70	$0.88	$1.40
Galvanized	.05½	.07	.12½	.18	.25	.39	.58	.....	.....	.....

Malleable Iron Drop Elbows



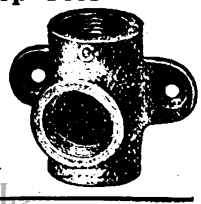
Price Each

Size, inches	Female	Female, Galvanized	Male and Female	Male and Female, Galv.
¼	$0.02½	$0.03½	.....	.....
⅜	.03	.04½	$0.03	$0.04½
½	.04½	.07	.04½	.07
¾	.07	.12½	.....	.....

Malleable Iron Drop Tees

Price Each

Size inches	Female	Female, Galvanized	Male and Female	Male and Female, Galv.
⅜	$0.04	$0.05½	$0.04	$0.05½
½	.05	.09	.05	.09
¾	.08	.14	.08	.14
1	.11	.....	.11	.....



A price in line saves time. All prices herein are net. No discounts to figure.

Cast Iron and Malleable Pipe Fittings

Crosses

Cast Iron Straight

Cast Iron Reducing

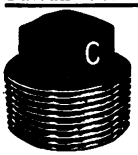
Malleable Straight and Reducing

Cast Iron, Price Each

Size, inches	½	¾	1	1¼	1½	2	2½	3	4	5	6
Straight	$0.06	$0.08	$0.09½	$0.15	$0.19	$0.26½	$0.46	$0.70	$1.10	$1.93	$2.54
Straight, galvanized	.11½	.15½	.19	.29½	.37½	.53	.91	1.40	2.21	3.85	5.08
Reducing	.06½	.09	.11	.16½	.21	.29	.51	.77	1.23	2.10	2.80
Reducing, galvanized	.12½	.17½	.21	.32	.42	.58	1.02	1.54	2.45	4.20	5.60

Malleable Iron, Price Each

Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6
Black	$0.03	$0.03½	$0.05	$0.06	$0.09	$0.12	$0.17	$0.27	$0.40	$0.90	$1.50	$2.15	$3.72
Galvanized	.07	.07	.07	.08	.13	.18	.22	.35	.43	1.00	1.95	.....	.....



Square Head

Cast Iron Plugs

Regular With Square Head and Counter Sunk

Price Each

Countersunk

Size, inches	⅛	¼	⅜	½	¾	1	1¼
Square head	$0.01½	$0.01½	$0.01½	$0.01½	$0.01½	$0.02	$0.02½
Sq. Hd., galv.	.....	.02	.02	.02	.03	.04	.05
Countersunk	.....	.....	.....	.02	.03	.04	.04

Size, inches	1½	2	2½	3	4	5	6
Square head	$0.03½	$0.04	$0.05½	$0.08	$0.13½	$0.29	$0.42
Sq. Hd. Galv.	.06	.08	.11	.15½	.26	.60	.84
Countersunk	.04	.05½	.11	.14	.39	.70	1.23

Cast Iron

Cast Iron and Malleable Reducers

Cast Iron, Price Each

Malleable

Size, inches	4½	5	6	8	10	12
Black	$0.65	$0.70	$0.95	$2.36	$3.50	$ 5.25
Galvanized	1.30	1.40	1.89	4.73	7.00	10.50

Malleable Iron, Price Each

Size, inches	¼	⅜	½	¾	1	1¼
Black	$0.02	$0.02	$0.02½	$0.03½	$0.04½	$0.05½
Galvanized	.03½	.03½	.03½	.04½	.07	.09

Size, inches	1½	2	2½	3	4	.....
Black	$0.06	$0.12	$0.14	$0.22	$0.49	.....
Galvanized	.12	.18	.29	.39	.73	.....

Cast Iron Bushings

Reducing 2 or more sizes up to 2½-inch, inclusive. Reducing one or more sizes, 3-inch and up.

Price Each

Size, inches	⅜	½	¾	1	1¼	1½
Black	$0.01½	$0.02	$0.02	$0.02½	$0.02½	$0.03½
Galvanized	.03½	.03½	.04	.04½	.04½	.07

Size, inches	2	2½	3	4	5	.....
Black	$0.04½	$0.06½	$0.09	$0.15½	$0.30	.....
Galvanized	.09	.13	.18	.30	.60	.....

Regular

Malleable Bushings

Reducing One Size,

Price Each

Faced

Size, inches	¼	⅜	½	¾	1	1¼	1½
Regular	$0.01½	$0.01½	$0.02	$0.02	$0.02½	$0.02½	$0.03½
Regular, Galv.	.02½	.02½	.03½	.04	.04½	.05	.06½
Faced	.....	.03	.03½	.04	.05	.06	.08
Faced, Galv	.....	.....	.....	.....	.07	.09	.12

Size, inches	2	2½	3	4	5	6	.....
Regular	$0.04½	$0.06½	.....	.....	.....	.....	.....
Regular, Galv.	.10	.15	.....	.....	.....	.....	.....
Faced	.11½	.17	.25	.53	.91	1.31	.....
Faced, Galv	.17	.25½	.37	.79	.....	.....	.....

Malleable

Cast Iron and Malleable Caps

Price Each

Cast Iron

Size, inches	¼	⅜	½	¾	1	1¼	1½
Mall., Blk	$0.01½	$0.02	$0.02	$0.02½	$0.04	$.04½	$0.05
Mall., Galv	.02	.02	.02½	.03½	.05	.05½	.08½

Size, inches	2	2½	3	4	5	6	.....
Mall., Blk	$0.08½	$0.10	$0.20	$0.56	$0.75	$1.05	.....
Mall., Galv.	.11½	.17½	.27	.65	1.05	1.50	.....
Cast Iron, Blk.	.....	.....	.....	.30	.42	.56	.....
CastIron, Galv.	.....	.....	.....	.61	.75	1.10	.....

Cast Iron and Malleable Lock Nuts

Faced Lock Nuts Are Made in Malleable Iron Only.

Price Each

Regular — Faced

Size, in...	¼	⅜	½	¾	1	1¼	1½	2
Mall., Blk.	$0.02	$0.02	$0.02	$0.02	$0.02½	$0.03	$0.05½	$0.09
Mall., Galv.	.02	.02	.02½	.02½	.04	.05	.07	.11
Faced, Blk.	.03	.03½	.04	.04½	.05½	.07	.09	.11
Faced, Galv	.04	.05	.06	.06½	.08	.11	.12½	.16

Size, inches	3½	3	4	5	6	8
Cast Iron, Black	$0.09½	$0.12	$0.22	$0.32	$0.46	$0.82
Cast Iron, Galv.	.18	.24	.45	.63	.91	1.64
Faced, Black	.12½	.16	.....	.....	.....	.....
Faced, Galv	.17	.23	.....	.....	.....	.....

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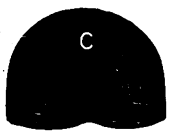
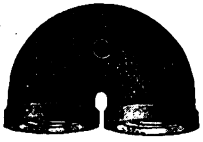
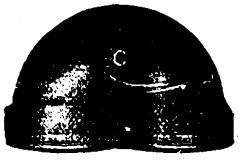
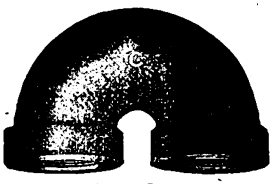
Return Bends


Malleable Iron Close Pattern


Malleable Iron Medium Pattern


Cast Iron Close Pattern


Cast Iron Open Pattern

Cast Iron Back Outlet

Malleable Iron
Close or Medium Pattern

Size, inches	½	¾	1	1¼	1½	2
Right hand, each.	$0.06½	$0.09	$0.12½	$0.18	$0.26½	$0.35
Left hand, each	.08	.11	.21	.21	.32	.44
Right & left, each.	.08	.11	.16	.21	.32	.44
Center to center, close, inches	1	1¼	1½	1¾	2 3/16	2⅝
Center to center, medium, inches.	1¼	1½	1⅞	2¼	2½	3

Malleable Iron
Open Pattern

Size, inches	½	¾	1	1¼	1½	2	2½	3
Right hand, ea.	$0.07	$0.11	$0.18	$0.13	$0.30	$0.44	$0.70	$1.05
Left hand, each.	.09	.13½	.21	.28	.37	.54	.88	1.31
Right & left, ea.	.09	.13½	.21	.28	.37	.54	.88	1.31
Center to center inches	1½	2	2½	3	3½	4	4½	5

Malleable Iron
Special Wide Pattern

Size, inches	⅜	¾	¾	1	1¼	1½
Price each	$0.09	$0.35	$0.44	$0.44	$0.44	$0.70
Center to Center, inches	1½	4	6	6	6	6
Size, inches		2	3	3	4	6
Price each		$1.05	$1.75	$1.75	$2.80	$5.60
Center to center, inches		5	7½	8	6	12

Cast Iron
Close Pattern

Size, in.	½	¾	1	1¼	1½	2	2½	3	4
Right	$0.06½	$0.07	$0.08	$0.10	$0.14	$.020	$0.42	$0.60	$1.75
R. & L.	.07½	.08	.09½	.12	.16½	.23	.49	.69	1.84
Left	.07½	.08	.09½	.12	.16½	.23	.49	.69	1.84
C.toC.in.	1¼	1½	1¾	2¼	2½	3¼	3¾	4¼	6

Cast Iron
Open Pattern

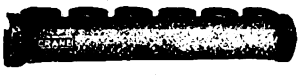
Size, inches	¾	1	1¼	1½	2	2½	3	4
Right hand	$0.09½	$0.11	$0.14	$0.19	$0.28	$0.48	$0.77	$2.28
Right and left	.11	.12½	.16½	.23	.32	.54	.88	.....
Center to center inches	1⅞	2⅜	3	3½	4½	5½	6½	7½

Cast Iron
Back Outlet

Size, inches	¾	1	1¼	1½	2	2½	3
Right hand, each	$0.13½	$0.15	$0.21	$0.28	$0.40	$0.70	$1.05
Right and left, each	.15	.17	.25	.33	.46	.81	1.23
Center to center, in	1⅞	2¼	2¼	2½	3¼	3¾	4¼

Cast Iron Branch Tees

Both Ends Open



All Threads R. H.
No. 1 For Circulation

Branches R. H.

Inlet Open R. H.

Closed

Outlet Open R. H.
No. 2 For Circulation

Both Ends Closed, Branches L. H.

Inlet Open R. H.
No. 3 For Box Coils

The run and back opening of branch tees are tapped the same size as branches unless otherwise ordered. Always order branch tees by size and number. **Back or side outlets charged as additional front outlets.**

1-inch branch tees, 1-inch or 1¼-inch run, are 1¾ inches inside diameter. 1-inch branch tees, 1½-inch or 2-inch run are 2¼ inches inside diameter. 1¼-inch branch tees are all 2½ inches inside diameter. 1½-inch branch tees or all 2¾ inches inside diameter. 2-inch branch tees are all 3½ inches inside diameter.

No. of Branches	1-Inch Branch Tees 2½-Inch Center to Center			1¼-Inch Branch Tees 3-Inch Center to Center			1½-Inch Branch Tees 3½-Inch Center to Center			2-Inch Branch Tees 4½-Inch Center to Center		
	1-Inch or 1¼-In. Run	1½ Inch Run	2-Inch Run	1¼-Inch or 1½-Inch Run	2-Inch Run	2½-Inch Run	1½-Inch or 2 Inch Run	2½-Inch Run	3-Inch Run	2-Inch Run	2½-Inch or 3-Inch Run	3½-Inch Run
2	$0.32	$0.35	$0.40	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.37	.40	.47	$0.58	$0.67	$0.84	$0.95	$1.21	$1.33	$1.84	$2.01	$2.19
4	.40	.46	.56	.70	.84	1.00	1.17	1.45	1.61	2.24	2.45	2.71
5	.47	.51	.65	.84	1.02	1.24	1.40	1.75	1.93	2.68	2.98	3.24
6	.56	.61	.74	.98	1.16	1.38	1.63	2.01	2.19	3.08	3.41	3.76
7	.67	.77	.86	1.12	1.37	1.47	1.84	2.28	2.54	3.71	4.11	4.55
8	.77	.86	.96	1.26	1.58	1.73	2.05	2.45	2.71	4.03	4.46	4.90
9	.93	1.02	1.19	1.51	1.84	2.15	2.28	2.89	3.15	4.29	4.73	5.25
10	.....	1.16	1.40	1.68	2.05	2.40	2.56	3.24	3.50	4.73	5.25	5.78
11	.....	1.58	1.68	1.75	2.19	2.54	2.80	3.41	3.76	.....	.....	.....
12	.....	1.66	1.79	1.84	2.28	2.68	2.98	3.68	4.03	.....	.....	.....
13	.....	1.93	2.10	2.10	2.45	2.89	.....	.....	.....	.....	.....	.....
14	.....	2.45	2.54	2.36	2.71	3.15	.....	.....	.....	.....	.....	.....
15	.....	2.63	2.71	2.63	2.98	3.41	.....	.....	.....	.....	.....	.....
16	.....	2.80	2.89	2.98	3.33	3.76	.....	.....	.....	.....	.....	.....

All prices in this catalog are net. There are no further discounts to be deducted.

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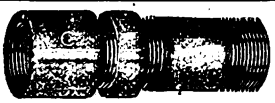
Cast Iron and Malleable Pipe Fittings

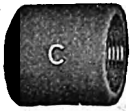
Malleable Iron Right and Left Nipples. Hex. Centers

Size, inches	¼	⅜	½	¾	1	1¼
Each	$0.06½	$0.06½	$0.06½	$0.08	$0.09½	$0.13
Size, inches	1½	2	2½	3	4	
Each	$0.16	$0.22	$0.35	$0.47	$0.76	

Long Screws
With Coupling and Lock Nut Faced



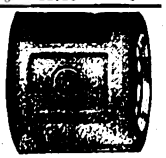
Size, inches	¼	⅜	½	¾	1	1¼
Length, inches	2½	3	3½	4	4½	5
Black, each	$0.09	$0.11	$0.12	$0.17	$0.23	$0.30
Galvanized, each	.11	.12	.15	.20	.30	.38
Size, inches	1½	2	2½	3	4	
Length, inches	5½	6	7	8	9	
Black, each	$0.39	$0.51	$0.81	$1.12	$1.98	
Galvanized, each	.48	.63	.93	1.41	2.33	



Standard Wrought Iron Couplings

Size of Pipe, inches	Black, Price Each	Galv. Price Each	Right and Left Black, Price Each	Nominal Outside Diameter, inches	Length Coupling inches	Average Weight of Coupling, pounds	No. of Threads per inch of Screw
⅛	$0.02	$0.02	.....	13/32	1 1/16	.03	27
¼	.02	.02	$0.02½	3/4	1 1/32	.07	18
⅜	.02	.02½	.03	29/32	1 5/32	.11	18
½	.02½	.03	.04	1 3/32	1 1/16	.15	14
¾	.03	.04	.06	1 15/32	1 1/16	.25	14
1	.04	.06	.07	1 5/8	1 1/16	.42	11½
1¼	.06	.08	.09	1 31/32	2 1/16	.60	11½
1½	.07	.10	.11	2 11/32	2 5/16	.81	11½
2	.09	.12	.18	2 23/32	2 9/16	1.18	11½
2½	.15	.22	.30	3 5/16	2 7/8	1.70	8
3	.23	.30	.45	3 13/16	3 1/16	2.45	8
3½	.30	.40	.60	4 7/16	3 1/16	3.40	8
4	.38	.54	.70	4 15/16	3 1/16	3.50	8
4½	.52	.70	.....	5 17/32	3 5/8	4.70	8
5	.58	.80	.....	6 1/4	4 1/8	8.50	8
6	.84	1.15	.....	7 9/32	4 1/8	9.70	8
7	1.14	.....	.....	8 9/32	4 1/8	11.10	8
8	1.51	.....	.....	9 1/4	4 5/8	13.60	8
9	1.92	.....	.....	10 5/16	5 1/8	17.40	8
10	2.62	.....	.....	11 5/8	6 1/8	31.10	8
12	3.50	.....	.....	13 7/8	6 1/8	44.20	8

Right and Left Malleable Iron Couplings Ribbed



Price Each

Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black	.02½	.02½	.03	.04½	.06	.09	.13	.18	.25	.35
Galvanized	.02½	.03½	.04	.06	.09	.12½	.19	.26	.37	.53

Right Hand Malleable Iron Couplings Ribbed

Price Each

Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black	.02	.02½	.02½	.04	.05	.07	.09	.12½	.21	.32
Galvanized	.02	.02½	.04	.06	.08	.11	.14	.19½	.33	.49

Cast Iron and Malleable Y Bends

Cast Iron

Malleable Iron

Cast Iron Price Each

Size, inches	½	¾	1	1¼	1½
Black	$0.07	$0.10	$0.12	$0.19	$0.23½
Galvanized	.14	.20	.24	.38	.47
Size, inches	2	2½	3	4	5
Black	$0.33	$0.58	$0.88	$1.40	$2.45
Galvanized	.66	1.16	1.75	2.80	4.90
Size, inches	6	7	8	10	12
Black	$3.22	$ 5.45	$ 7.88	$15.75	$23.48
Galvanized	6.44	10.90	15.75	31.50	46.96

Malleable Iron, Price Each Straight and Reducing

Size, in.	½	¾	1	1¼	1½	2	2½	3	4
Black	$0.14	$0.18	$0.21	$0.28	$0.35	$0.60	$0.70	$1.40	$1.93
Galv.	.21	.26	.32	.44	.53	.88	1.05	2.10	2.89

60° Y Bends
Malleable Iron Only Price Each

Size, inches	2x2	2x1½
Black	$0.60	$0.60
Galvanized	.88	.88

Malleable Iron Railing Fittings

No. 1 Elbow

No. 2 Elbow Side Outlet.

No. 3T

No. 4 Tee Side Outlet

No. 5 Cross

No. 6 Cross Side Outlet

No. 7 Floor Flange Square

No. 8 Boll Ornament

Price Each

Size	½	¾	1	1¼	1½	2	2½
No. 1	$0.05½	$0.06½	$0.07	$0.12½	$0.16	$0.25½	$0.56
No. 2	.07	.08	.09	.14	.18	.28	.61
No. 3	.07	.08	.09	.14	.18	.26½	.61
No. 4	.10½	.12	.12½	.16	.19½	.32	.66
No. 5	.10½	.12	.12½	.16	.20½	.35	.63
No. 6	.12	.13½	.14	.18	.23	.47½	.70
No. 7	.05½	.06½	.07	.14	.18	.32	.46
No. 8	.05½	.06½	.07	.09	.12½	.32	.46

Railing fittings are all tapped with right hand threads, except where left hand threads are indicated on the cut. We can furnish them, however, tapped all right hand at regular price. Tapped otherwise will be charged at 15 per cent additional net. Orders for railing fittings with special tapping must be accompanied by a sketch. Specially tapped fittings unreturnable.

Order by specifying number and size.

For galvanized railing fittings, add 50 per cent.

We carry a most complete line of pipe threading devices. See pages 18 to 29.

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Wrought Iron Nipples

Close

Shoulder

Extra long

Right Hand Nipples

Length, inches: Close	Short	Long				Diameter, inches	Prices: Close or Short Doz.	Close or Short Each	Long Doz.	Long Each	Prices of Extra Long Nipples, Length, inches: 4	5	6	7	8	9	10	11	12
¾	1½	2	2½	3	3½	⅛	$ 0.11	$0.01	$0.16½	$0.01½	$0.02	$0.02	$0.03	$0.03	$0.04	$0.04	$0.04½	$0.05	$0.05
⅞	1½	2	2½	3	3½	¼	.11	.01	.16½	.01½	.02	.02	.03	.03	.04	.04	.04½	.05	.05
1	1½	2	2½	3	3½	⅜	.11	.01	.16½	.01½	.02	.03	.03	.03	04	.04	.04½	.05	.05
1⅛	1½	2	2½	3	3½	½	.16½	.01½	.22	.02	.02	.02	.03	.04	.04	.05	.05	.06	.06
1⅜	2	2½	3	3½	4	¾	.16½	.01½	.22	.02	.....	.03	.03½	.04½	.05	.05	.06	.06	.07
1½	2	2½	3	3½	4	1	.22	.02	.33	.03	.....	.04	.05	.06	.06½	.07	.08	.09	.09
1⅝	2½	3	3½	4	4½	1¼	.23½	.02½	.44	.04	.....	.05	.06	.07½	.08½	.09	.10	.11	.12
1¾	2½	3	3½	4	4½	1½	.33	.03	.55	.05	.....	.06½	.07½	.09	.10	.11½	.13	.14	.15
2	2½	3	3½	4	4½	2	.44	.04	.66	.06	.....	.08	.10	.13	.14	.15	.16	.18	.19
2½	3	3½	4	4½	5	2½	.99	.09	1.43	.13	.....	.....	.17	.23	.24½	.27	.29	.32	.34
2½	3	3½	4	4½	5	3	1.21	.1	1.76	.16	.....	.....	.21½	.27	.30	.33	.36	.40	.43
2¾	4	4½	5	5½	6	3½	1.87	.17	2.86	.26	.....	.....	.....	.33	.36	.40	.44	.48	.51
3	4	4½	5	5½	6	4	2.09	.19	3.30	.30	.....	.....	.....	.38	.42	.47	.51	.56	.60
3	4	4½	5	5½	6	4½	3.41	.31	4.62	.42	.....	.....	.....	.56	.63	.69	.74	.79	.85
3¼	4½	5	5½	6	6½	5	4.29	.39	6.71	.61	.....	.....	.....	.65	.71	.78	.84	.90	.96
3¼	4½	5	5½	6	6½	6	5.06	.46	8.03	.73	.....	.....	.....	.76	.84	.93	1.00	1.08	1.16
3½	5	.....	.....	.....	.....	7	8.80	.80	.....	.....	.....	.....	.90	1.01	1.11	1.23	1.31	1.44	1.54
3½	5	.....	.....	.....	.....	8	9.79	.89	.....	.....	.....	.....	1.01	1.14	1.26	1.37	1.50	1.62	1.75
4	5	.....	.....	.....	.....	9	14.41	1.31	.....	.....	.....	.....	.....	.....	1.62	1.79	1.94	2.10	2.25
4	5	.....	.....	.....	.....	10	18.70	1.70	.....	.....	.....	.....	.....	.....	2.06	2.12	2.42½	2.60	2.78
4	5	.....	.....	.....	.....	12	22.00	2.00	.....	.....	.....	.....	.....	.....	2.50	2.70	2.94	3.17	3.42

Nipples made to order from Extra Heavy Pipe at double above prices.

Plain Right and Left Nipples

Length, inches: Close	Short	Long				Diameter, inches	Prices: Close or Short Doz.	Close or Short Each	Long Doz.	Long Each	Prices of Extra Long Nipples, Length, inches: 4	5	6	7	8	9	10	11	12
¾	1½	2	2½	3	3½	⅛	$0.16½	$0.01½	$0.22	$0.02	$0.03	$0.03	$0.03½	$0.04	$0.05	$0.05	$0.06	$0.06½	$0.07
⅞	1½	2	2½	3	3½	¼	.16½	.01½	.22	.02	.03	.03	.03½	.04	.05	.05	.06	.06½	.07
1	1½	2	2½	3	3½	⅜	.16½	.01½	.22	.02	.03	.03	.03½	.04	.05	.05	.06	.06½	.07
1⅛	1½	2	2½	3	3½	½	.22	.02	.33	.03	.03	.03½	.04	.05	.05½	.06	.07	.07½	.08
1⅜	2	2½	3	3½	4	¾	.22	.02	.33	.03	.....	.04	.04½	.06	.06½	.07	.07½	.08	.09
1½	2	2½	3	3½	4	1	.33	.03	.55	.05	.....	.05	.06	.08	.08½	.09½	.10½	.11½	.12
1⅝	2½	3	3½	4	4½	1¼	.44	.04	.66	.06	.....	.07	.08	.10	.11½	.13	.14	.15	.16½
1¾	2½	3	3½	4	4½	1½	.55	.05	.77	.07	.....	.09	.10	.12	.13	.15	.17	.18	.20
2	2½	3	3½	4	4½	2	.66	.06	.99	.09	.....	.11	.13	.17	.18	.20	.22	.24	.26
2½	3	3½	4	4½	5	2½	1.43	.13	2.20	.20	.....	.....	.23	.30	.33	.35	.39	.42	.45
2½	3	3½	4	4½	5	3	1.81	.16½	2.64	.24	.....	.....	.28	.36	.40	.44	.48	.53	.57
2¾	4	4½	5	5½	6	3½	2.75	.25	3.85	.35	.....	.....	.....	.44	.49	.54	.59	.64	.69
3	4	4½	5	5½	6	4	3.08	.28	4.18	.38	.....	.....	.....	.50	.56	.63	.69	.75	.81

For Galvanized Right and Left Nipples, add 60 per cent to above prices.

Galvanized Right Hand Nipples

Length, inches: Close	Short	Long				Diameter, inches	Prices: Close or Short Doz.	Close or Short Each	Long Doz.	Long Each	Prices of Extra Long Nipples, Length, inches: 4	5	6	7	8	9	10	11	12
¾	1½	2	2½	3	3½	⅛	$ 0.16½	$0.01½	$ 0.33	$0.03	$0.03	$0.04	$0.04½	$0.05½	$0.06	$0.07	$0.07½	$0.08	$0.09
⅞	1½	2	2½	3	3½	¼	.16½	.01½	.33	.03	.03	.04	.04½	.05½	.06	.07	.07½	.08	.09
1	1½	2	2½	3	3½	⅜	.22	.02	.33	.03	.03	.04	.04½	.05½	.06	.07	.07½	.08	.09
1⅛	1½	2	2½	3	3½	½	.22	.02	.33	.03	.03	.04	.05	.06	.07	.07	.08	.08½	.09
1⅜	2	2½	3	3½	4	¾	.22	.02	.33	.03	.....	.05	.05½	.07	.07½	.08	.09	.10	.10
1½	2	2½	3	3½	4	1	.33	.03	.44	.04	.....	.06	.07	.09	.10	.11	.12	.13	.14
1⅝	2½	3	3½	4	4½	1¼	.44	.04	.66	.06	.....	.08	.10	.11½	.13	.14½	.16	.17½	.19
1¾	2½	3	3½	4	4½	1½	.55	.05	.77	.07	.....	.10	.12	.14	.16	.18	.19	.21	.23
2	2½	3	3½	4	4½	2	.66	.06	1.10	.10	.....	.13	.15½	.19	.21	.23	.26	.28	.31
2½	3	3½	4	4½	5	2½	1.43	.13	2.09	.19	.....	.....	.25	.32	.35	.39	.43	.47	.50
2½	3	3½	4	4½	5	3	1.76	.16	2.64	.24	.....	.....	.33	.40	.45	.70	.55	.60	.65
2¾	4	4½	5	5½	6	3½	2.86	.26	4.07	.37	.....	.....	.....	.53	.59	.65	.71	.79	.85
3	4	4½	5	5½	6	4	3.30	.30	4.51	.41	.....	.....	.....	.58	.65	.73	.80	.88	.95
3	4	4½	5	5½	6	4½	5.06	.46	7.15	.65	.....	.....	.....	.83	.91	1.01	1.11	1.21	1.31
3¼	4½	5	5½	6	6½	5	6.27	.57	8.69	.79	.....	.....	.....	.94	1.05	1.15	1.25	1.35	1.46
3¼	4½	5	5½	6	6½	6	7.70	.70	11.66	1.06	.....	.....	.....	1.13	1.25	1.39	1.51	1.65	1.76
3½	5	.....	.....	.....	.....	7	11.66	1.06	.....	.....	.....	.....	1.24	1.41	1.59	1.76	1.96	2.12	2.30
3½	5	.....	.....	.....	.....	8	13.75	1.25	.....	.....	.....	.....	1.45	1.66	1.88	2.08	2.32	2.55	2.74

Nipples larger than 12 inches long, made to order and charged as cut pipe.
Nipples can be furnished without threads or threaded one end. Prices governed by quantity.

All prices in this catalog are net. There are no discounts to be deducted.

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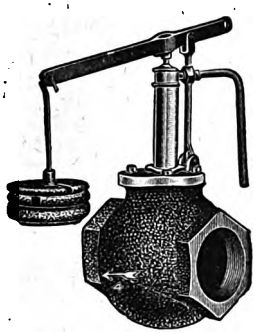
Pressure Regulators



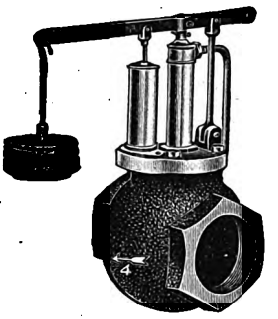
No. 0 without Dashpot

These regulators or reducing valves are intended for service in reducing steam, water and air pressures. Suitable for initial pressures up to 150 pounds. Will reduce to any lower pressure and automatically maintain it regardless of the demand or fluctuations in the high or initial pressure. The deliver pressure may be as low as one pound if the regulator is counter-weighted by suspending weights from the opposite end of the lever to overcome the actual weight of the internal parts.

No. 0 Regulator is for service where there is no sudden variation of volume as for heating coils, etc. It is fitted for a dashpot, which can be added if necessary after being installed.

No. 1 Regulator with dashpot is used where there is a sudden variation in volume used, as on an engine or pump, also when required to control a number of heating coils or other apparatus.

When ordering, state initial and reduced pressures and whether for water, steam or air service.

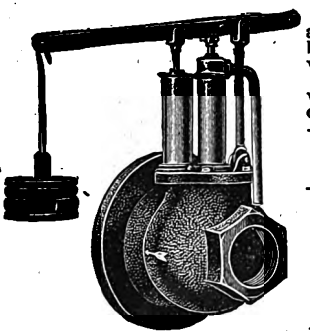


No. 1 with Dashpot

Price Each

Size, inches.	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12
No. 0.....	$12.60	$14.00	$15.40	$16.80	$17.50	$21.00	$24.50	$28.00	$42.00	$52.50	$70.00	$122.50	$192.50	$270.00
No. 1.....	14.30	15.60	16.90	18.20	19.50	23.40	27.30	31.20	46.80	56.50	78.00	130.00	195.00	282.75
Weight, lbs.	16	16	17	18	25	50	60	76	130	140	185	260	450	575

No. 2 Pressure Regulator with Expanded Outlet

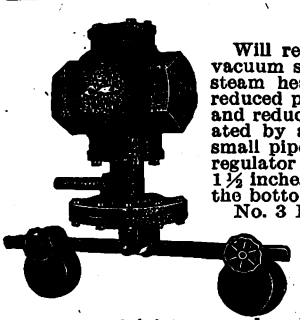


Similar in construction to the No. 1 Regulator, the only difference being that it has an expanded outlet. Equally well adapted for either high or low pressure service and because of its construction, the steam is permitted to expand quickly and decrease in velocity after it has passed through the valve.

When ordering, state initial and reduced pressures, also whether for steam, air or water service. Sizes 1x2 to 2x4 have screwed ends, 2½x5 to 3x6, inlet screwed and outlet flanged, larger sizes flanged.

Size, inches	Price Each	Weight, pounds	Size, inches	Price Each	Weight, pounds	Size, inches	Price Each	Weight, pounds
1 x2	$21.00	50	3½x 7	$66.00	175	6x10	$150.00	270
1¼x2½	24.00	60	4 x 6	66.00	160	6x12	201.00	300
1½x3	28.75	75	4 x 7	78.00	190	8x10	210.00	300
2 x3	32.40	90	4 x 8	96.00	200	8x12	240.00	350
2 x4	36.00	100	5 x 8	102.00	210	8x14	258.00	400
2½x5	48.00	120	5 x 9	132.00	230	8x16	287.50	450
3 x5	54.00	130	5 x10	141.00	250	10x16	390.00	500
3 x6	60.00	150	6 x 8	132.00	230	10x20	420.00	600

Low Pressure Regulators



Will reduce steam, air or water pressures. Especially adapted for vacuum steam heating systems, also atmospheric or very low pressure steam heating. Suitable for initial pressures up to 150 pounds and reduced pressures not exceeding 8 pounds. When ordering state initial and reduced pressures and whether for steam, water or air. It is operated by an independent diaphragm controlled by pressure through a small pipe direct from the low pressure system at a distance from the regulator where the pressure is about average excepting on sizes 1½ inches and under where this connection is made through the bottom of valve cap.

No. 3 Regulator is a straightway valve with inlet and bottom connection the same size. Sizes 2 to 6 made screwed or flanged ends, but screwed furnished unless otherwise ordered. Larger sizes, flanged ends.

No. 4 is exactly the same as No. 3 except that it has an expanded outlet and is especially adapted for controlling heating mains. Sizes 1x2 to 2x4 screwed ends, 2½x5 to 3x6 inlet screwed and outlet flanged, 3½x7 and larger flanged ends.

No. 3 Low Pressure Regulators

Size, inches.....	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12
Price each.....	$13.00	$14.00	$16.00	$17.50	$20.00	$25.00	$30.00	$40.00	$52.50	$70.00	$115.00	$145.00	$180.00
Weight, pounds...	16	18	20	30	55	65	81	135	145	190	260	450	525

No. 4 Low Pressure Regulator (Expanded Outlet)

Size, inches	Price Each	Weight, pounds	Size, inches	Price Each	Weight, pounds	Size, inches	Price Each	Weight, pounds
1 x2	$18.00	50	3½x 7	$ 72.00	175	6x10	$135.00	270
1¼x2½	22.50	60	4 x 6	72.00	160	6x12	142.00	300
1½x3	27.00	75	4 x 7	78.75	190	8x10	153.00	300
2 x3	31.50	90	4 x 8	85.50	200	8x12	157.50	350
2 x4	36.00	100	5 x 8	94.50	210	8x14	180.00	400
2½x5	40.50	120	5 x 9	103.50	230	8x16	202.50	450
3 x5	49.50	130	5 x10	117.00	250	10x16	270.00	500
3 x6	58.50	150	6 x 8	126.00	230	10x20	292.50	600

Gripwell Tires are used by Chicago's Fire and Police Departments.

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Blow Torches and Brazing Forges

Gasoline Blow Torches Nos. 31 and 32

These two Blow Torches are, perhaps, the most popular torches on the market.

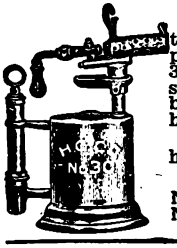
They have no equal where intense heat is necessary and produce a perfect blue flame, indoors or out, in hard wind or extreme cold. Generating chamber superheats the gas before it is burned.

No. 32 as shown. No. 31 exactly the same, except without soldering iron hook.

Capacity, 1 quart of fuel.

No. 31. Price each.....**$3.60**
No. 32. Price each..... **3.90**

Gasoline Blow Torches Nos. 29 and 30



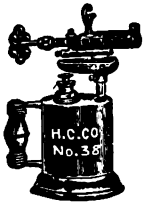
Nos. 29 and 30 are popular priced torches and while not having the improved type of burner used with the Nos. 31 and 32 torches, they are well made and serviceable. Tank is made of 18 gauge brass, reinforced. Pump is located in handle.

No. 30 has soldering iron hook; No. 29 has not.

Capacity, 1 quart.

No. 29. Price each.....**$3.00**
No. 30. Price each..... **3.25**

Gasoline Blow Torches Nos. 37 and 38



No. 37 and No. 38 are the best pint torches made and are exactly the same as the No. 31 and No. 32, except in the capacity of the tank

For many purposes a small torch is much more convenient than a quart size. No. 37 with and No. 38 without soldering iron holder.

Capacity, 1 pint.

No. 37. Price each.....**$2.25**
No. 38. Price each..... **2.50**

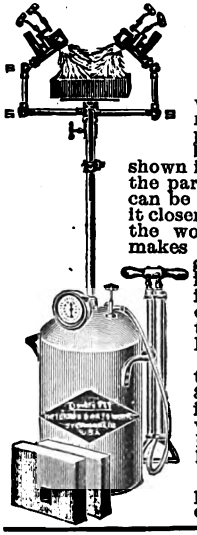
No. 10 Torch

A polished brass blow pipe or alcohol torch, possessing many exclusive features. A closely fitting cap screwed down firmly over the wick makes the tank air-tight, which positively prevents evaporation of alcohol. The blow pipe is fitted to a threaded nut, which may be run up or down to adjust it for the work in hand.

Shipping weight, each, ¾ pound.

Price each.....**$1.60**

Gasoline Brazing Forge No. 88



The two special double-jet burners with which this forge is fitted, are mounted on swivel connections at points marked S, so that flames can be turned in any direction. Fire brick shown in illustration retains the heat around the part to be brazed. The fire brick table can be raised or lowered as desired, bringing it closer to the work or lowering it away from the work. Its wide range of adjustment makes it adaptable for general work in garages, repair shops, etc. For brazing cast iron, brass and other metals, it cannot be excelled. The double-jet construction causes perfect combustion of the fuel and produces intense heat.

The tank is made of boiler steel, tested to 125 pounds pressure, holding 8 gallons of fuel. Height of forge, 55 inches, diameter 12¼ inches, shipping weight, 125 pounds.

No. 88. Brazing Forge.....**$22.00**
No. 230. Floor Pump..... **2.50**

Note.—Price does not include floor pump, which is not furnished unless ordered.

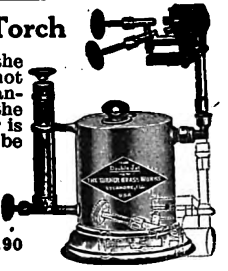
Gasoline Blow Torches Nos. 47 and 48

These torches are oblong in shape, 1⅞ inches thick and are convenient for working in cramped places, as well as packing in the repair boxes of automobiles, etc., better than the regular round-shaped torch. No. 48 with and No. 47 without soldering iron hook. Hinged support prevents tipping over.

Capacity, 1 pint.

No. 47. Price each..**$3.75** **No. 48.** Price each..**$4.00**

No. 93 Double Jet Blow Torch

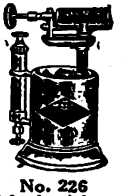


This torch has a double blast, the burners producing an intensely hot flame suitable for light brazing, annealing, tempering or drawing the temper of small tools. The burner is mounted on a swivel and can be turned in any direction.

Capacity, 1 quart.

No. 93. Price each.....**$4.90**
No. 92. Exactly same as above, except burner does not swivel, but remains upright. Price ea..**$4.90**

Nos. 12 and 226 Blow Torches



No. 12. "Old Reliable" Gasoline Torch has been on the market for many years and is favorably known to thousands of mechanics. Capacity 1 qt. Price each.....**$3.75**

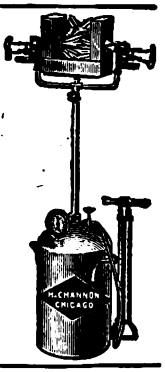
No. 226. Is a comparatively new torch using either gasoline or kerosene, vaporizing the latter perfectly. Capacity, 1 quart.

No. 12 Price each.....**$4.00** **No. 226**

Note.—Nos. 12 and 226 Torches are furnished with a detachable soldering iron hook.

Gasoline Brazing Forge No. 55

Double Jet



This forge will produce an exceptionally high degree of heat with small burners. The double jet construction causes perfect combustion and consequently the maximum degree of heat is obtained with the minimum consumption of fuel. Flames are regulated by means of valves. With the burner valves turned on full, the flame is much larger and can be used for brazing heavier work in cast iron, brass and other metals.

Size of flame at burner, 1¼ inches. Length of flame, 10 inches. Consumption about 2 quarts. Weight about 74 pounds.

Style	Cpcty. gals.	Hght. inches	Diam. inches	Price Each
No. 55	4½	45	9	$17.50
No. 105	8	50	12¼	21.50

No. 82 Pipe Joint Lead Melting Machine

Designed especially for melting lead in pipe joints of water and gas mains or where it is desirable to bring the flame to the work. Burner is made of special bronze metal, attached to a three-foot iron pipe with handle. Generator produces a perfect blue flame of about 2,800 degrees Fahrenheit. A blow torch is furnished with each machine for generating the burner. Six feet of special oil hose accompanies each machine. Size of flame at burner, 2 inches; length about 12 inches; consumption about 3 quarts per hour; capacity 8 gallons; height 27 inches; diameter 12¼ inches; weight 90 lbs.

No. 82 For gasoline.**$35.25** **No. 82A.** For kerosene.**$39.25**

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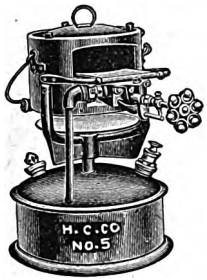
Fire Pots and Soldering Furnaces

Nos. 1 and 5 Gasoline Fire Pot



No. 1. This style of fire pot is adapted to a greater number of uses than any other. Tank is heavy galvanized iron. Burner is made of special generator metal and produces an ideal blue flame working perfectly in cold or windy weather. Will heat two coppers and melt a pot of lead at the same time. Capacity 7 pints.

Price each.....$6.00

No. 5. Same as above, except with smaller tank, holding 5 pints of fuel.

Price each.....$4.50

Nos. 10 and 20 Coil Fire Pot

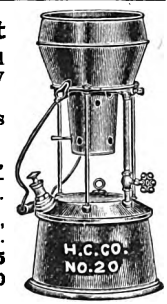
These Fire Pots hold a gallon of fuel and are exactly the same except the way in which the air pressure is produced.

No. 20. Has a brass air pump as shown and No. 10 a rubber bulb.

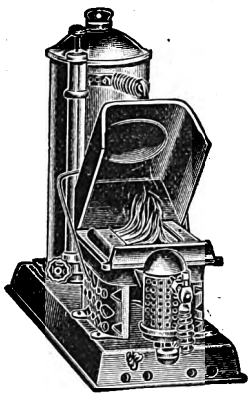
They have a great generating power, combining marked economy of fuel consumption with the great heat produced.

Tanks are made of galvanized iron, well braced to withstand rough usage.

No. 10. With rubber bulb.....$2.95
No. 20. With air pump..... 3.50



The "Double Blast" Fire Pot



Heats the Irons Rapidly with a Very Low Consumption of Gasoline

The blast is from the outside to the center, so that when one soldering copper is being used, both hot blasts are forced upon the one remaining.

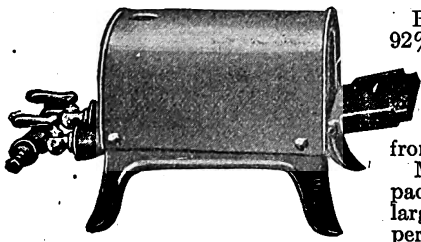
Can be readily carried about on roofs or any place where a soldering furnace is used.

Tank is galvanized steel, 5x 12 inches, with 1x10-inch brass pump. Furnace will heat two 12-pound coppers at one time.

Price each.....$7.25

Superior Furnace

For Natural, Illuminating or Produced Gas



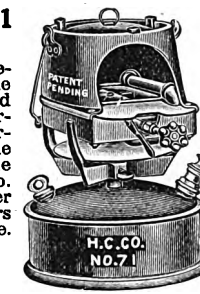
Burns about 92% of air and 8% of gas. The fire brick keeps the heat from radiating. Maximum capacity is four large size coppers at a time, but gives better service with only two.

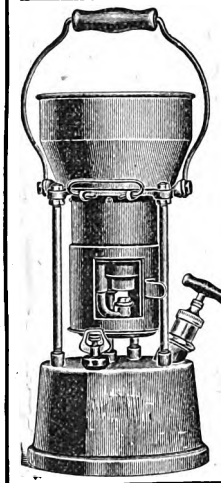
	Size	Price Each
No. 1.	Single burner, with cast iron top	$1.80
No. 2.	Double burner, with cast iron top	2.40
No. 3.	Single burner, with firebrick	2.40
No. 4.	Double burner, with firebrick	3.00

Gasoline Fire Pot Nos. 71 and 72

No. 71 fire pot is noiseless, smokeless and odorless. Has a sub-flame for generator which permits heated flame to be turned very low. Superheated gas and double heating surfaces produce intensely hot blue flames, which burn from each side to center. No. 72 is similar to No. 71 but a size smaller. The burner will heat a pair of 8-pound coppers and a pot of metal at the same time.

No.	Capacity pints	Weight, pounds	Price Each
71	7	15	$6.50
72	5	14½	4.90





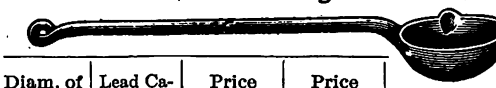
No. 221 Kerosene Fire Pot

1 Gallon Capacity

No. 221 Kerosene Fire Pot contains many improvements and is perfect in construction and remarkable in heat producing qualities, using but little fuel. The tank is made of heavy gauge, seamless drawn steel, with bottom and all fittings welded in, not soldered, making it extra strong and serviceable. A large automatic brass pump quickly and easily supplies all needed air pressure. The burner is made with a powerful generator and superheats the kerosene gas before it is burned, producing perfect combustion and the maximum degree of heat, enabling the operator to secure a clear, blue flame, free from smoke and odor. The filler plug at the top of the tank is made with an air valve screw which releases the air pressure and extinguishes the flame. All parts are made strong and easily accessible. Weight each, 12 pounds.

Price each.....$7.35

Babbitt Melting Ladles



Diam. of Bowl, in.	Lead Capacity, lbs.	Price per Doz.	Price Each
3	1½	$ 1.75	$0.18
4	4	2.50	.25
5	8½	3.25	.33
6	15	5.00	.90
7	26	10.80	1.08
8	45	13.50	1.35
9	57	18.00	1.80
10	80	21.60	2.15
12	130	32.50	3.25

Drop forged of extra heavy mild steel.

Solder and Pouring Pots

Solder Pots

Size, inches	Lead Capacity, pounds	Price Each
5	12	$0.30
6	16	.35
8	80	.80
10	100	1.60
12	130	2.25

Pouring Pot **Pouring Pots** **Solder Pot**

Outside diameter 8 inches. Inside diameter 7 inches Depth 6 inches.

Price each.....$1.50

Gas Heater for Soldering Coppers

An efficient heater at a low price. Dimensions 14½ x7x3¾ inches wide. Weight each 3 pounds.

Price each.....$1.25

Prices quoted herein are net. All discounts have been deducted.

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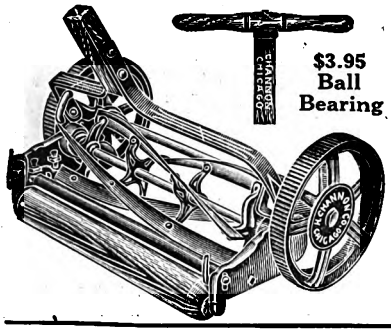
Lawn Mowers, Clippers and Rollers



"Channon Special"

Nine-Inch Wheels—Four Blades

The material from which this machine is built is of the very best, the reel knives being made of manganese steel and the cutter bar of crucible tool steel. This is the same material as used in higher grade machines, Helmer and Boughton. The cold rolled steel shaft passing through the center of the open wheel mowers makes them rigid and permits their use as an axel. This makes an absolutely substantial axle. The long hub on the open wheel mowers aids the wheels to run easy and true, lengthens the life of the machine and reduces the wear on the ratchets. The cutter bar blade is fastened to the reel by set screws at each end and, being of extra length, makes them accessible for quick adjustment. Furnished in two convenient sizes, 16 and 18-inch diameter.

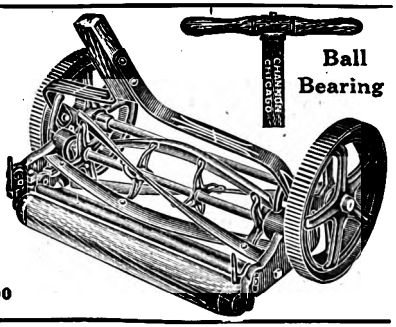
Width of blade, inches	16	18
Shipping weight, pounds	45	47
Price each	$3.95	$4.45

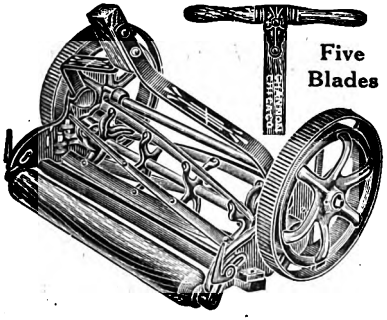
Helmer Lawn Mower

Ten-Inch Wheels—Four Blades

The "Helmer" is so built that it is one of the most pleasing to operate. Its pleasing design, proportion of weight, size of reel and reel blades make it a favorite as an all around machine. The wheels are fitted with solid hubs and oil retaining chamber, and are held by a steel clip bolted to the casing and fitted over the inside end of the hub, which is enlarged for the purpose. This permits the oil to circulate freely around the axles. No cotter pins or washers are necessary to hold the wheel on. The ratchets used are about one-fourth larger in diameter than the average. The shoulder on which the ratchet pins catch are longer, allowing a larger holding surface and more metal for them to wear on.

Width of blade, inches	16	18	20
Shipping weight, pounds	54	60	64
Price each	$6.00	$6.50	$7.00



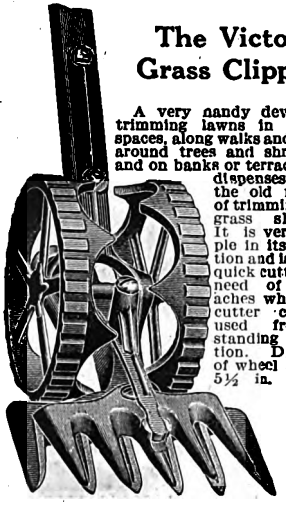


Boughton Ball-Bearing Lawn Mower

Eleven-Inch Wheels—Five Blades

To satisfy the demand for a strictly high grade machine, we offer the "Boughton." Its noiseless, light-running operation cannot be excelled. Two reel blades are on the cutter bar blade at all times, giving a short cut. The reel is adjusted to the center bar blade and is the most accurate form of adjustment yet designed. It is easily set, then locked by a simple locking device, which preserves at all times the rigidity and correct alignment of the machine. A special feature of the Boughton machine is the turned-up hardened lip on the crucible tool steel bar blade. This turned-up lip feature makes the cutter bar blade **self-sharpening** and gives a larger wearing surface. The reel is 5¾ inches in diameter with five blades of manganese steel. The balls, cups and cones are of the highest grade steel, uniformly hardened and dustproof. Furnished in three sizes, 16, 18 and 20-inch diameter.

Width of blade, inches	16	18	20
Shipping weight, pounds	65	68	70
Price each	$8.50	$9.00	$9.50



The Victor Grass Clipper

A very handy device for trimming lawns in narrow spaces, along walks and drives around trees and shrubbery and on banks or terraces. It dispenses with the old method of trimming with grass shears. It is very simple in its operation and is a very quick cutter. No need of backaches when this cutter can be used from a standing position. Diameter of wheel 5½ in., 5½ in. cutting capacity. Price each

$2.50

Water-Weight Lawn Rollers

For use on lawns, gardens, tennis courts, athletic fields, golf courses, walks and drives. Its very easy running quality is due to the use of roller-bearings, high carbon steel, perfectly round and smooth axles—as used in automobile construction. The axle revolves freely in the roller-bearings at each end. The rolls revolve independently, being loose on the axle. The handles are strong and rigid, but light—all steel except the grip. Two weights are attached to the handle on either side, keeping the handle off the ground at all times. The weights are hung on the outside of the roll ends, instead of the inside where they work loose and cannot be readily reached. The edges are rounding to avoid cutting.

We can also furnish rollers without handle weights or without the water-weight attachment in most any size desired. Information gladly furnished.

No.	Size of Roller, inches	No. of Sections	Weight, pounds: Empty	Filled with Water	Filled with Sand	Price Each
2	14x20	1	120	260	360	$ 7.50
4	18x24	1	135	360	560	9.45
6	24x24	1	185	560	860	12.00
8	24x32	1	200	710	1060	13.35
10	18x24	2	160	360	560	12.85
12	24x32	2	230	710	1060	16.60
14	24x24	2	185	560	860	15.25

Our Elastic Garden Hose is unkinkable and durable. Described in detail on another page. See index.

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OUTING AND SUMMER SPECIALTIES

OARS, OAR LOCKS

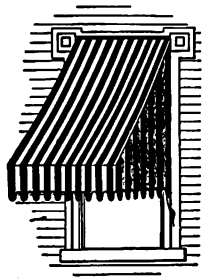
NET PRICES

Selected White Ash Oars

Length, feet	6	6½	7	7½	8	9
Plain, per pair	$1.10	$1.20	$1.30	$1.40	$1.50	$1.70
Copper Tipped, plain	1.20	1.30	1.40	1.50	1.60	1.85

Extra for leathering, per pair, 50c; varnishing 25c.

Carroll Adjustable Awnings



Four inches adjustment. Fits window 2 in. larger or smaller than size specified. 8 oz. Duplex duck, blue and white, or brown and white. Complete with ropes, cleat, pulleys, galvanized fixtures, screws, staples, etc., and full directions for hanging. Ht. 42 in., projection 30 in.

No. 1, 2 ft. 6 in., **No. 2,** 3 ft. 3 in., **No. 3,** 3 ft. 6 in.

Price, each, either size **$1.50**

SILK AUTO TENT

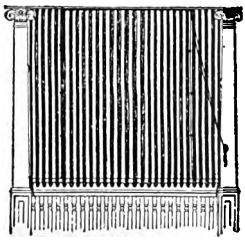
Large Sleeping Capacity

Small Size When Folded Up

$7.50

An invaluable aid to the motorist who tours, to the camper, hunter, canoeist, and anyone else who appreciates a waterproof tent of great sleeping capacity, and which folds up into a space of but 42x8 inches, including stakes, joined pole, and ropes. Weighs but nine pounds. Size when set up is 5x7 feet. Only a single pole is necessary to rig it. *Size 5x7 ft., 7 ft. high, 2½ ft. wall, weight 9 lbs.*

Bieder Adjustable Porch Curtains



Made in 3 sizes. Easily adjusted. Fit any porch. 8 oz. Duplex duck, blue and white, or brown and white. Adjustable frame. Complete with ropes, cleats, screws, galvanized fixtures, and full directions for hanging.

No. 5. Adjustable 4 to 6 ft. wide., 76 in. high **$2.50**

No. 6. Adjustable 6 to 8 ft. wide, 76 in. high **$3.00**

No. 7. Adjustable 8 to 10 ft. wide, 76 in. high **$4.00**

Camp Bed No. 1

6 ft. 6 in. long. Opened, it is a full length, comfortable, elastic bed; folded, it is a snug package, 4 in. x 5 in. x 3 ft. 2 in. long. Weighs 17 lbs., will support half a ton. Covered with extra quality double filled brown duck. Stands firmly. Has duck fold that converts into pillow.

Net Price, each.....**$2.10**

Camp Bed No. 50

Same as No. 1, but wider. 36 in. wide.

Net Price, each.....**$3.50**

Excelsior Camp Stools

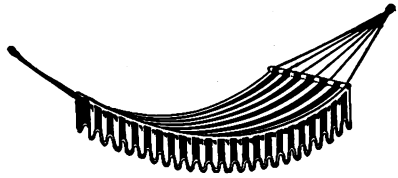
These inexpensive stools are made of best hard wood, nicely finished in the white. Back slat fastened with rivets, not nails. Good folders. Seat 10 oz. duck. Weight with back, 6 lbs.

Net Prices

With back, each...**$0.30**

Without back, ea.**$0.25**

Solid Comfort Canvas Hammocks



Designed and constructed for comfort. Finish first-class. Heavy grade canvas. Extra wide spreaders. Heavy cotton ropes and rings. Fancy duplex striped canvas with full valence.

Net price, each.....**$1.70**

SEND FOR CATALOGUE No. 59-R—CAMP SUPPLIES

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GRIPWELL TIRES

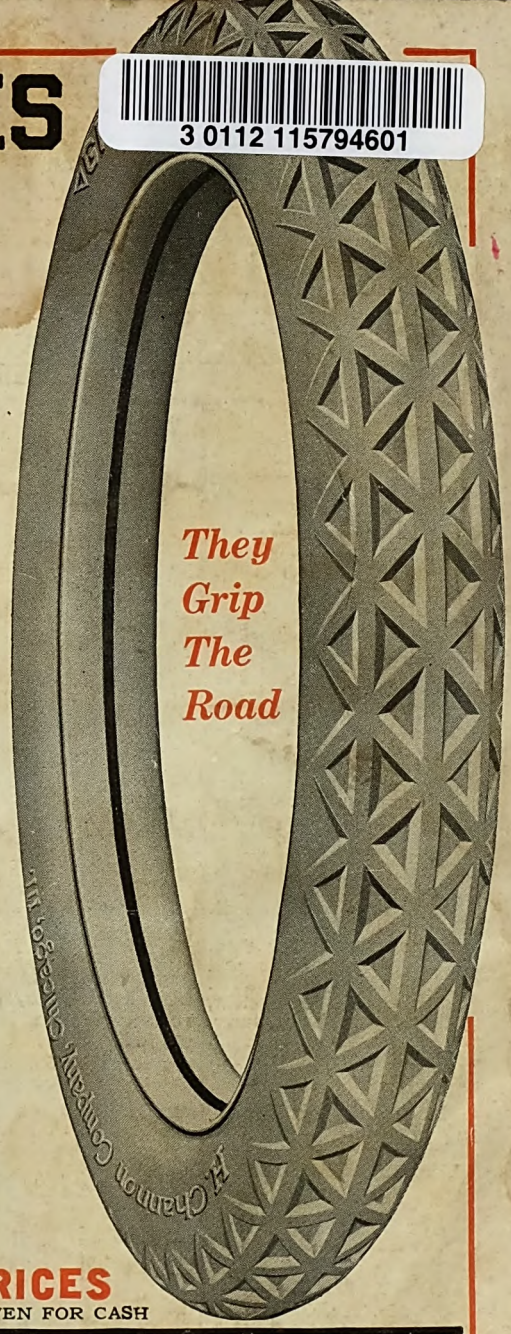
Guaranteed 3,500 Miles

Quality, Satisfactory Mileage,

Channon Quick Service, together with our very *Low Net Prices,* make Gripwell Tires the best value obtainable, and most miles per dollar.

NOTE—There is a shortage now on small sizes of tires of many brands. Our stock is complete. Order now and avoid delay and disappointment.

H. Channon Company.
Market and Randolph Streets.
Chicago



They Grip The Road

SPECIAL NET PRICES

NO FURTHER DISCOUNT—NOT EVEN FOR CASH

SIZE	SMOOTH TREAD	NON-SKID	GARNET TUBE	GRAY TUBE	SIZE	SMOOTH TREAD	NON-SKID	GARNET TUBE	GRAY TUBE
28×3	$ 7.50	$ 7.90	$ 2.25	$ 2.00	34×4	$17.00	$17.95	$ 3.95	$ 3.55
30×3	7.70	8.30	2.25	2.05	35×4	17.80	18.70	4.00	3.60
32×3	8.70	.....	2.45	2.20	36×4	18.10	19.00	4.10	3.70
					37×4	.....	.....	4.25	3.80
29×3½	10.40	10.95	2.60	2.35					
30×3½	10.00	10.75	2.60	2.35	32×4½	.....	.....	4.75	4.30
31×3½	10.70	11.25	2.70	2.45	34×4½	22.95	24.15	4.90	4.40
32×3½	11.75	12.35	2.75	2.50	35×4½	23.80	25.00	5.00	4.50
34×3½	13.15	13.80	2.90	2.60	36×4½	24.15	25.30	5.15	4.60
36×3½	13.80	.....	3.05	2.75	37×4½	25.00	26.25	5.20	4.70
30×4	15.15	15.85	3.55	3.20					
31×4	15.85	16.65	3.60	3.25	35×5	.....	.....	5.95	5.35
32×4	16.10	16.90	3.70	3.35	36×5	27.45	28.85	6.10	5.45
33×4	16.80	17.60	3.85	3.45	37×5	28.45	29.90	6.20	5.55

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